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RHYNCHOTA.—Vol. IV.

HOMOPTERA AND APPENDIX (Pt.).

BY

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PREFACE.

This the fourth volume of the Rhynchota in the 'Fauna of British India' series deals with the Membracidæ, Cercopidæ, and Jassidæ, the last a most obscure family of Homoptera, and the Appendix (which has been commenced) includes such species of the Pentatomidæ, Coreidæ, and Berytidæ as have been added to the Indian Fauna since the publication in 1902 of Vol. I. of the Rhynchota.

The arrangement and classification of the Indian Jassidæ has been a most arduous task, as so little pioneer work had been done heretofore in this obscure group. It is hoped, however, that the arrangement adopted, though it may hereafter be subjected to revision, will fulfil the primary object to which all the volumes of the 'Fauna of British India' series are directed, viz. that of enabling students of Natural History in India to recognize and identify the forms of animal life they meet with in the course of their collecting.

C. T. BINGHAM.

London,
July 1908.

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Order RHYNCHOTA.

Suborder *HOMOPTERA*.

Family MEMBRACIDÆ.

Membracides, *Germ. Mag. Ent.* iv, p. 7 (1821).
Membracina, *Burm. Handb. Ent.* ii, 2, p. 102 (1839).
Membracidæ, *Curtis, Brit. Ent.* xvi, *Gen.* p. 14 (1840).
Cornidorsi, *Amy. & Serv. Hém.* p. 532 (1843).
Jassida, subfam. Membracida, *Stål, Hem. Afr.* iv, p. 83 (1866).
Membracida, *Fieb. Rev. Mag. Zool.* (3) iii, p. 332 (1875).

THIS family has already (vol. iii, p. 54) been diagnosed by its primary characters :—ocelli placed between the eyes ; antennæ inserted in front of and between eyes ; pronotum prolonged backwards into a hood or process of variable form. The Membracidæ constitute one of the most distinct families in the Homoptera, and are principally distinguished by the great development of the pronotum, particularly its posterior process, the frequently bizarre structure of which has occasioned much speculation, and produced some observational facts relative to its advantage in mimetic and protective resemblance to other insects and to its environment.

The family has been much worked and elucidated in recent years. Fairmaire in 1846 was the great pioneer ; Walker followed a few years later, but his work is of unequal value ; Stål, in 1866 and 1869, with his usual penetration and unique taxonomical insight gave some masterly generic tabulations which still constitute the bedrock of all our classification. Butler, 1877 and 1878, gave revised lists of the species of many genera nearly if not quite wholly American in distribution ; in 1892 Goding gave a synopsis of the subfamilies and genera found in North America ; while in 1894 Fowler commenced his enumeration and description of the Membracidæ of Central America.

Of the Old-World Membracidæ, Stål gave a description of the Philippine fauna in 1870 ; Goding monographed the Australian members of the family in 1903, in which year Melichar described all the species from Ceylon with which he was acquainted. It was also in 1903 that Buckton produced his 'Monograph of the Membracidæ' : and when we remember that that gifted and versatile scientific worker commenced his study of the exotic Membracidæ when he had about reached the eightieth year of his life, and that he was physically incapacitated by an almost life-long affliction from visiting museums and private collections for

comparison of types and specimens, his work, apart from its limitations, is a standard of energy and determination. He drew all the figures himself, which was sometimes disadvantageous, for although a painter in oils of considerable merit, he naturally lacked that minute and microscopic delineation which is indispensable to the entomological artist. By the kindness of his family his collection of the Membracidæ has passed into my hands, and I have thus been able to study his types and genera. Of eourse Walker's types have always been at my examination; Dr. Horváth has kindly let me see such of Melichar's Ceylonese species as are contained in the Museum Hongrois at Budapest; Prof. Poulton has done me the same service as regards speeies described by Buckton from the Hope Colleetion; both Drs. Aurivillius and Sjöstedt have assisted me with cotypes of Stål's species in the Stockholm Museum, and I am under similar obligation to Dr. Bolivar of Madrid and Dr. Handlirsch of Vienna.

The Membracidæ of British India, or of the Old World generally, cannot compare with those of the Neotropical Region either in number, colour, or strueture, and it is in the latter region that this family reaches its zenith in development.

The natural position of the Membraeidæ among the other families of the Homoptera is still *sub judice.* Stål and Hansen consider the Membraeidæ as essentially belonging to the Jassidæ, and not without substantial if not adequate reason. I, however, incline to the views of most modern writers on the subject and consider the Membracidæ as a very distinct subfamily, linked to the Cercopidæ by the *Machærotinæ*, and this at least has to be conceded, whether according to different views the Cereopidæ precede or follow the Membracidæ in classification. The family is divided into six subfamilies, of which two are found in our fauna, and in Fowler's opinion these two subfamilies might be sufficient to embrace the whole of the Membracidæ. It is probable that there is considerable argument in this view, though at present with some rhynchotal systematists, or those at least qualified to express dogmatie opinions, an artificial system once promulgated is to be accepted as a biological eanon.

Belt ('The Naturalist in Nicaragua,' pp. 226–7) states that certain species of Membracidæ were attended by ants for the sake of a sweet secretion. E. E. Green (Ent. Month. Mag. xxxvi, p. 185) has recorded some practically similar observations made by himself in Ceylon.

Synopsis of Subfamilies.

A. Scutellum wanting or obsolete, or entirely concealed by the pronotum; the tibiæ, or at least the intermediate and anterior tibiæ, more or less dilated .... *Membracinæ.*

B. Scutellum usually distinct and more or less uncovered, its apex generally excavate or broadly sinuate, the apical angles acute .... *Centrotinæ.*

Subfamily I. MEMBRACINÆ.

Membracida, *Stål, Hem. Afric.* iv, p. 83 (1866); *Fieb. Rev. Mag. Zool.* (3) iii, p. 332 (1875).
Centrotida (part), *Stål, Öfv. Vet.-Ak. Förh.* 1869, p. 280.
Centrotina (part), *Atkins. J. A. S. Beng.* liv, p. 76 (1885).
Membracinæ, *Fowler, Biol. Centr.-Amer., Rhynch. Hom.* ii, p. 3 (1894).

The two genera found in the Indian fauna which are placed in this subfamily are of rather doubtful position. So sound and experienced a taxonomist as Stål placed them originally in the above subfamily (1866); in 1869 he transferred them to the *Centrotinæ*, and again in the same year (Hem. Fabr. ii, p. 47) he adhered to his earlier decision. In general appearance they strongly resemble the *Centrotinæ*, but they differ from all the genera there included by the absent or obsolete scutellum, entirely concealed by the pronotum.

Division *OXYRHACHISARIA*.

In this division the posterior pronotal process is long and narrow, broad at base, and reaching or passing the posterior angle of the interior margin of the tegmina; the tibiæ are dilated; the sides of the pro- and mesosterna are armed with a small lobe or tooth.

Synopsis of Genera.

A. Posterior pronotal process compressed and ampliated beneath on its apical area; wings with three apical areas.
   a. Pronotum with the lateral angles more or less produced .... OXYRHACHIS, p. 3.
   b. Pronotum with the lateral angles not produced .... OXYRHACHIDIA, p. 8.
B. Posterior pronotal process not compressed and ampliated beneath; wings with four apical areas .... XIPHISTES, p. 8.

Genus **OXYRHACHIS**.

Oxyrhachis, *Germ. in Silb. Rev. Ent.* iii, p. 232 (1835); *Fairm. Ann. Soc. Ent. Fr.* 1846, p. 267; *Stål, Hem. Afr.* iv, p. 84 (1866); *Fieb. Rev. Mag. Zool.* (3) iii, p. 333 (1875); *Atkins. J. A. S. Beng.* liv, p. 76 (1885); *Melich. Hom. Faun. Ceylon*, p. 108 (1903).
Polocentrus, *Buckt. Monogr. Membrac.* p. 253 (1903).
Ouranorthus, *Buckt. Trans. Linn. Soc. Lond.* ix, p. 333 (1905).

Type, *O. tarandus*, Fabr.

Distribution. Oriental and Ethiopian Regions.

Head perpendicular, face a little elevated; pronotum with the lateral angles more or less produced, the processes three-cornered or tricarinate; the posterior process long, narrow, broad at base, beneath posteriorly compressed and amplified and reaching or passing the posterior angle of the interior margin of the tegmina, this process is also three-cornered or tricarinate; sides of the pro- and mesosterna armed with a small lobe or tooth; wings with three apical areas; tibiæ compressed and moderately dilated.

I have included *Polocentrus*, Buckt. as a synonym of *Oxyrhachis*, because its describer states that *P. rufus* "may be taken as typifying the genus," though the first species he enumerates (*P. latipes*) evidently belongs to the genus *Xiphistes.*

2104. **Oxyrhachis tarandus**, *Fabr.* (Membracis) *Ent. Syst. Suppl.* p. 514 (1798); *id.* (Centrotus) *Syst. Rhyng.* p. 19 (1803); *Germ.* (Oxyrhachis) *in Silb. Rev. Ent.* iii, p. 232 (1835); *Amy. & Serv. Hém.* p. 536 (1843); *Fairm. Ann. Soc. Ent. Fr.* 1846, p. 268, pl. 4, f. 13; *Stål, Hem. Afr.* iv, p. 84 (1866); *id. Hem. Fabr.* ii, p. 47 (1869); *Atkins. J. A. S. B.* liv, p. 77 (1885).

Polocentrus rufus, *Buckt. Monogr. Membrac.* p. 254, t. lviii, f. 2, *a*, *b* (1903).

Polocentrus neuter, *Buckt. tom. cit.* t. lviii, f. 3 (1903).

Ferruginous or fuscous, thickly punctate; head frontally piceous, often apically more or less marginally ochraceous; tegmina dull hyaline, the veins fuscous, the base narrowly pale ferruginous; pronotum with a central longitudinal carination which traverses

Fig. 1.—*Oxyrhachis tarandus.*

the length of the posterior process; the lateral processes subhorizontal, seen from behind a little recurved, seen from the front more upwardly recurved, strongly tricarinate, compressed, their apices obtusely acute; posterior process long, extending beyond tegminal apices, upwardly recurved, beneath laminately ampliate and finely serrate; legs somewhat longly pilose.

Length 7 to 9; breadth lat. pronot. process. 4 millim."

Hab. Bengal, Calcutta (*Ind. Mus.*); Madras (*Coll. Dist.*): Chatrapur, Ganganu (*Stebbing*); Mysore, Bangalore (*Brit. Mus.*); Karachi (*Cumming*). — Abyssinia. Egypt. Senegal. South Africa.

This species in the Madras District was found by Mr. E. P. Stebbing on *Acacia siamea* and *A. arabica* and on *Casuarina*. In Mr. Buckton's collection there is a Madras specimen labelled *Centrotus emyo* (type), of which I can find no published description, but the species may have been distributed under that name and therefore requires mention.

Prof. Poulton has sent me examples for comparison of the species described by Buckton as *Polocentrus rufus*; his *P. neuter* was described from my own collection. Both his figures must be ignored. The species figured by Buckton (Monogr. Membrac. t. xlix, f. 3, *a*, *b*) as *Oxyrhachis tarandus* is the S. African *Xiphistes furcicornis*, Germ., his cotypes are now in my collection.

2105. **Oxyrhachis subjecta**, *Walk. List Hom.* ii, p. 504 (1851); *Atkins. J. A. S. B.* liv, p. 79 (1885).

"Nearly allied to *O. tarandus* but is smaller; the dorsal horns are shorter in proportion and less diverging; the hind appendage is more inclined upward and not serrated beneath. Black, clothed with whitish down; head transverse, subquadrate, flat, slightly impressed, finely punctured, not much broader than long, a little narrower than the fore-chest between the shoulders, truncated and ferruginous in front; fore-chest rather high in front, rather roughly punctured, rising almost vertically from the head, with a ferruginous ridge; shoulders rounded, not prominent; horns above very broad, prismatic, conical, diverging, ascending, hardly curved downward; hind side much shorter than either of the other sides; length of the horns rather less than the breadth of the chest between them; hind appendage mostly ferruginous, extending very far beyond the tip of the abdomen, inclined upward and keeled beneath but not serrated from the middle to the tip; breast and abdomen clothed with white down; legs red; shanks widened; wings colourless; fore-wings tawny and punctured at the base, with a brown spot on the angle of the hind border; veins stout, ferruginous; four discoidal areolets." (*Walker.*)

"Length of the body 3; of the wings $5\frac{1}{2}$ lines."

Hab. "East Indies."

The unique type of this species is now in a most mutilated condition, the "dorsal horns" being quite destroyed. According to the description, it differs from the preceding species by the non-serrate under surface of the posterior process.

2106. **Oxyrhachis rudis**, *Walk. List Hom.* ii, p. 509 (1851); *Atkins. J. A. S. B.* liv, p. 78 (1885).

Ferruginous-brown, a central pale carinate longitudinal line traversing the pronotum and the posterior process; tegmina very pale dull ochraceous, the apical margin hyaline, the veins and a small basal patch ferruginous; pronotum thickly punctate; the lateral processes broad, somewhat flat, horizontally produced, their

apices subacute and slightly directed backward, as seen from the front more slender and a little more apically acute; posterior process moderately laminately gibbous at base, then concave and apically upturned but not reaching tegminal apex, very obscurely serrate beneath; legs testaceous; body beneath more or less greyishly or pale ochraceously tomentose.

Length 7 to $7\frac{1}{2}$; breadth lat. pronot. process. $3\frac{1}{2}$ millim.

Hab. North Bengal (*Brit. Mus.*); Calcutta (*Indian Mus.*).

To be distinguished from *O. tarandus* by the shorter and broader lateral pronotal processes, and by the shorter posterior process.

2107. **Oxyrhachis palus**, *Buckt.* (Ouranorthus) *Trans. Linn. Soc.* ix, p. 333, t. xxii, f. 1 (1905).

Body and legs pale ochraceous; face pale castaneous; tegmina hyaline, wrinkled, talc-like, the veins and extreme basal area pale ochraceous; pronotum somewhat sparingly punctate; the lateral processes as seen from above short, broad, slightly recurved at apices, discally concavely grooved, as seen in front apically turned a little downward; posterior process long, passing the posterior angle of the inner margin of the tegmina, centrally and laterally carinate, the central carination finely continued through pronotum, moderately laminately gibbous at base and apically upturned.

Length 8; breadth lat. pronot. process. 3 millim.

Hab. Bangalore (*Madrid Mus.*).

By the kindness of Prof. Bolivar of the Madrid Museum, I have been allowed to examine the type of this species. The posterior pronotal process is fractured and erectly upturned, which deceived Buckton and induced him to regard this as a natural character upon which he proposed the foundation of a new genus, *Ouranorthus*.

The species is allied to *O. rudis*, Walk., by the broad but more apically recurved lateral pronotal processes, especially as viewed in front, the colour is also pale ochraceous.

2108. **Oxyrhachis uncatus**, *Melich. Hom. Faun. Ceylon*, p. 108 (1903).
Centrotus nectaris, *Buckt. Monogr. Membrac.* p. 246, t. lviii, f. 4, *a, b* (1903).

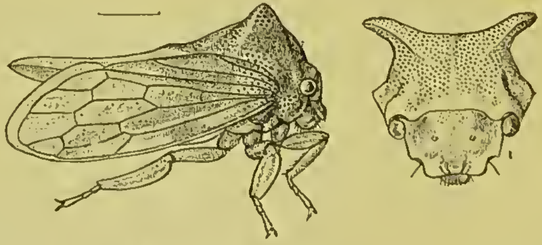

Fig. 2.—*Oxyrhachis uncatus.*

Brownish-ochraceous; a central pale yellow carinate line to

pronotum; frontal margin of pronotum, the lateral processes, and posterior process (excluding base) ochraceous; tegmina wrinkled, subhyaline, the veins ochraceous; legs ochraceous; body beneath cretaceously tomentose; pronotum thickly punctate, laterally here and there slightly cretaceously tomentose; lateral processes short, ascendant, their apices rounded, their outer areas with an oblique pale line; posterior process reaching or slightly passing tegminal apices, laterally compressed, apically slightly turned upward; tegmina opaque and punctured at base.

Length 7; breadth lat. pronot. process. 3 to $3\frac{1}{2}$ millim.

Hab. Ceylon; Peradeniya (*Green*). Trichinopoly (*fide Melichar*).

2109. **Oxyrhachis crinitus**, *Buckt.* (Centrotus) *Monogr. Membrac.* p. 247, t. lx, f. 5 (1903).

Pale brownish-testaceous, thickly punctate, a central pale longitudinal carinate line traversing the pronotum and posterior process; a transverse spot on each side of base of head, a spot on pronotum behind each eye and the apex of carinate line to posterior

Fig. 3.—*Oxyrhachis crinitus.*

process black; tegmina wrinkled, subhyaline, the venation ochraceous, the base opaque and punctate; legs ochraceous; sternum black, more or less cretaceously tomentose; abdomen beneath ochraceous, slightly cretaceously tomentose; pronotal lateral processes very short, much less prominent as seen from behind than in front, from behind they are broadly angulate, from in front more prominent and subacute; posterior process a little raised near base, then concave and more or less upwardly directed towards apex, which does not quite reach tegminal apices, beneath very finely serrate; face with the basal and apical margins more or less black.

Length $4\frac{1}{2}$ to $5\frac{1}{2}$; breadth lat. pronot. process. $1\frac{1}{2}$ to 2 millim.

Hab. Ceylon; Kaits (*Green*).

Genus OXYRHACHIDIA.

Oxyrhachidia, *Melich. Hom. Faun. Ceylon,* p. 118 (1903).

Type, *O. inermis*, Stål.
Distribution. Ceylon.
Dr. Melichar thus differentiates this genus. "Tibiæ compressed aud moderately widened. Differs from *Oxyrhachis* by the absenee of the lateral processes to the pronotum, while the posterior process is broad at base, narrowed like an awl behind and straight. In this respect the geuus comes near *Gargara*, while in *Oxyrhachis* the hinder portion of the posterior projection is strongly laterally compressed with the apex directed either up or down."

2110. **Oxyrhachidia inermis,** *Stål* (Oxyrhachis), *Öfv. Vet.-Ak. Förh.* 1869, p. 283; *Melich.* (Oxyrhachidia) *Hom. Faun. Ceylon,* p. 118 (1903).

Ferruginous-brown; central pronotal carination, medial area of posterior pronotal process, abdomen beneath and legs brownish-ochraeeous; tegmina hyaline, venation ochraceous; pronotum convex, punetate; posterior proeess almost reaehing apex of

Fig. 4.—*Oxyrhachidia inermis.*

tegmina, tricarinate above, the eentral carination contiuued through pronotum, narrowest at a little beyond base, posteriorly ampliated beneath where it is both above and beneath margined with fuseous; tegmina opaque aud punetate at base.
Length $6\frac{1}{2}$ to $7\frac{1}{2}$ millim.
Hab. Ceylon (*Coll. Signoret*)
I am indebted to Dr. Handlirsch for the opportnnity of figuring this species. The Vienna Museum now contaius the Signoret colleetion.

Genus XIPHISTES.

Xiphistes, *Stål, Hem. Afr.* iv, pp. 83 & 85 (1866); *id. Öfv. Vet.-Ak. Förh.* 1869, p. 280.

Type, *X. furcicornis*, Germ., a South-Afriean speeies.
Distribution. Ethiopian and Oriental Regions.
Lateral angles of the prouotum variably produeed iu length,

the processes three-cornered or tricarinate; posterior process long, tricarinate or three-cornered, almost reaching the apex of the interior margin of the tegmina, but not ampliately compressed beneath as in *Oxyrhachis*, above with a central carinate line which is continued on the pronotum; wings with four apical areas; sides of the pro- and mesonota armed with a small spine or tooth; tibiæ compressed and moderately dilated.

This has hitherto been regarded as an Ethiopian genus, but the following Oriental species must be included in it.

2111. **Xiphistes unicolor**, *Walk.* (Oxyrhachis) *List Hom.* ii, p. 509 (1851); *Atkins. J. A. S. B.* liv, p. 78 (1885).

Ferruginous, shortly pilose; tegmina subhyaline, with the venation dull testaceous; pronotal angles longly, subacutely and longitudinally produced, moderately divergent, as seen from in front more upwardly directed; posterior process tricarinate, apically a little recurved, terminating at the posterior angle of the inner margin of tegmina; femora black, their apices and the

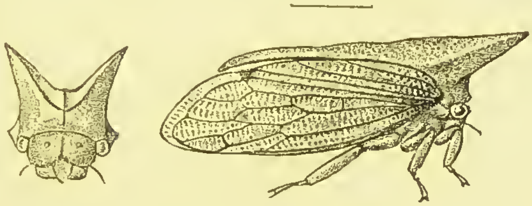

Fig. 5.—*Xiphistes unicolor.*

tibiæ and tarsi testaceous; base of tegmina coarsely punctate; pronotum thickly but finely punctate.

Length including lateral pronot. process. 10 millim.

Hab. "East Indies" (*Parry*, *Brit. Mus.*).

Subfamily II. CENTROTINÆ.

Nudiscuti, *Amy. & Serv. Hém.* p. 549 (1843).
Jassida, subfam. Centrodida, *Stål, Hem. Afr.* iv, p. 83 (1866); *id.* (part) *Öfv. Vet.-Ak. Förh.* 1869, p. 280.
Centrotina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 727.
Centrotinæ, *Fowler, Biol. Centr.-Am., Rhynch. Hom.* ii, p. 3 (1894); *Goding, Proc. Linn. Soc. N.S. Wales,* xxviii, p. 5 (1903).

Scutellum distinct, more or less uncovered, produced beyond metanotum, and furnished with acute apical angles.

This subfamily is not, however, one of rigid diagnosis, for, as in the division *Coccosterphusaria*, there is no complete scutellum.

Division *HYPSAUCHENIARIA.*

Head almost triangular; pronotum without lateral processes but produced upwards in a compressed process generally curved backward with its apex bilobed; sides of pro- and mesosterna armed with a small lobe or tooth.

Synopsis of Genera.

A. Posterior pronotal process lobately elevated before apex........................ HYPSAUCHENIA, p. 10.
B. Posterior pronotal process slender, straight, without a subapical elevation .... HYBANDA, p. 13.

Genus **HYPSAUCHENIA.**

Hypsauchenia, *Germ. in Silb. Rev. Ent.* iii, p. 230 (1835); *Amy. & Serv. Hém.* p. 535 (1843); *Fairm. Ann. Soc. Ent. Fr.* 1846, p. 520; *Stål, Hem. Afr.* iv, p. 86 (1866); *id. Öfv. Vet.-Ak. Förh.* 1869, p. 280; *Atkins. J. A. S. B.* liv, p. 80 (1885).

Type, *H. hardwicki*, W. Kirby.

Distribution. Oriental Region.

Head almost triangular, trilobed towards extremity; pronotum shorter than the tegmina, without lateral processes, but produced upward in a compressed process generally curved backward with its apex bilobed; posterior process apically one-lobed, slender, narrow at base, narrower than the scutellum which is visible, and before apex angularly upwardly produced; tegmina extending considerably beyond the abdominal apex, their apical margins obliquely truncate, their apical angles longly produced; tibiæ simple, not dilated; sides of pro- and mesosterna armed with a small lobe or tooth.

Germar gave as his type *H. ballista* from Demerara. Fairmaire, however, satisfied himself that the habitat was erroneous and that the species was a synonym of *H. hardwicki*, W. Kirby.

2112. **Hypsauchenia hardwicki,** *W. Kirby* (Centrotus), *A. M. N. H.* ii, p. 21, f. 5 *b* (1829); *Fairm.* (Hypsauchenia) *Ann. Soc. Ent. Fr.* 1846, p. 520, t. iii, ff. 20, 21; *Atkins. J. A. S. B.* liv, p. 80 (1885); *Buckt. Mon. Membrac.* p. 210, t. xlvi, f. 3, *a, b* (1903).

Hypsauchenia ballista, *Germ. in Silb. Rev. Ent.* iii, p. 231 (1835).
Var. floralis, *Buckt. Mon. Membrac.* p. 210 (1903).
Var. pygmæa, *Buckt. tom. cit.* p. 211, t. xlvii, f. 1 (1903).

Piceous; tegmina and legs brownish-piceous; pronotum granulose, its discal process curved backward, tricarinate above, apically bilobed; the lobes broad, wrinkled, basally broadly separated and there enclosing a circular space, their apices with a slight slender

projection, nearly but not reaching the tegminal apices; tegmina for about two-thirds broadly laterally punctate; tibiæ and tarsi a little paler than femora.

Length 7 to 8 millim.

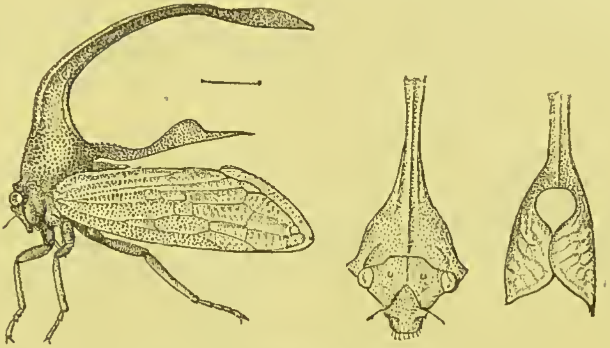

Fig. 6.—*Hypsauchenia hardwicki.*

Hab. Sikhim. Nága Hills (*Doherty*); Khási Hills (*Jordan*); Assam and Nepal (*fide Atkinson*); Darjiling (*Coll. Dist.*). Pegu (*Coll. Buckton*).

I possess Buckton's type of *H. floralis*, which is now unfortunately in a somewhat mutilated condition, but there is little doubt that he was quite right in surmising that it was a variety of Kirby's species; the var. *pygmæa* is a smaller and paler form of the species.

2113. **Hypsauchenia subfusca**, *Buckt. Mon. Membrac.* p. 211, t. xlvi, f. 5, *a*, *b* (1903).

Hypsauchenia hardwickii, *Fairm.* (*nec Kirby*) *Ann. Soc. Ent. Fr.* 1846, p. 520, t. iii, ff. 20, 21.

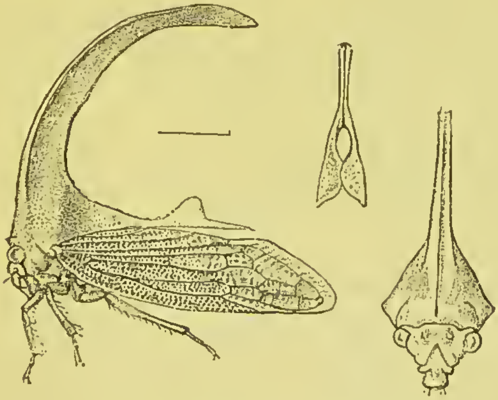

Fig. 7.—*Hypsauchenia subfusca.*

Allied to *H. hardwicki* but differing principally in the following

characters :—the subapical angular elevation to the posterior process is narrower and more acute; the apical lobes to the discal pronotal process are narrower and more elongate, while the space which separates them at base is ovate and not circular; in other respects the characters are almost entirely similar.

Length 7 to 8 millim.

Hab. Assam (*Coll. Dist.*). Sikhim (*Indian Mus. & Coll. Dist.*).

I have seen a long series of this species and the differential characters are constant.

2114. **Hypsauchenia uncinata,** *Stål, Öfv. Vet.-Ak. Förh.* 1869, p. 283; *Atkins. J. A. S. B.* liv, p. 80 (1885).

Obscurely ferruginous-ochraceous, pubescent; dorsal process of the pronotum bending a little forward, posteriorly sublobate, acuminate and recurved at the apex; tegmina punctured before the middle, pellucid behind the middle; the anterior process is much shorter and differently formed from other species of this genus; pronotum punctulate, furnished anteriorly with a compressed dorsal process, somewhat shorter than the posterior process, bending a little forward, posteriorly roundly ampliated a little above the middle, apex slender, acuminate and much recurved; posterior process somewhat elevated behind the middle; tegmina moderately densely reticulated behind the middle.

Fig. 8.—*Hypsauchenia uncinata.*

Length ♀ 8 millim.

Hab. N.E. India (*fide Stål*). Pussumbing, Darjeeling (*Mann, Ind. Mus.*). Nepal; Nagorkote (*Hodgart, Ind. Mus.*).

Often specimens of this species from ants' nests on trees (*Hodgart*).

The figure is taken from a cotype in the Stockholm Museum, for which I owe my thanks to Dr. Chr. Aurivillius. Mr. H. H. Mann found this species near Darjeeling on *Cyphomandra* and on *Artemisia*.

2115. **Hypsauchenia gibbosa,** sp. n.

Rufous-brown, lateral and apical areas of the tegmina paler, the latter sprinkled with small white spots; dorsal process of the pronotum raised and directed a little forward as in *H. uncinata* but its apex bilobed; the lobes short, narrow, not roundly ampliated, recurved and almost meeting posteriorly; posterior process slender, upwardly strongly serrate, and with a large, flat, broadly conical

subapical protuberance, the surface of which is widely reticulate, the apex moderately long and slender, reaching the apex of the inner margin of the tegmina; tegmina thickly punctate at base and to beyond middle, strongly wrinkled on disk, the apical area paler, reticulate and sprinkled with small white spots.

Length 7 millim.

Hab. Burma; Ruby Mines (*Doherty*).

Genus **HYBANDA**, nov.

Type, *H. anodonta*, Buckt.

Distribution. Oriental Region.

Allied to *Hypsauchenia* but differing principally by the structure of the posterior process, which is uniformly slender and without a subapical erection. Ocelli about as far apart from eyes as from each other; dorsal process of the pronotum variable, recurved as in *Hypsauchenia*, sometimes centrally globose as in *H. bulbosa*, Buckt., apically bilobate or bifurcate; posterior process slender, centrally and laterally carinate, attenuated towards apex, not reaching tegminal apex.

At present I am only acquainted with two species which belong to this genus, both found in the Malay Peninsula where they appear to be abundant, at least at Perak, and one of which is recorded from Assam.

Another allied genus, *Pyrgauchenia*, Bredd., has been described from Celebes.

2116. **Hybanda anodonta**, *Buckt.* (Hypsauchenia) *Mon. Membrac.* p. 212, t. xlvii, f. 2 (1903).

Fuscous-brown; apical area of tegmina brownish-ochraceous; underside of body and the legs usually dark testaceous; pronotum punctate and subrugulose, the dorsal process long, posteriorly and upwardly inclined, its apex bilobed, the lobes elongate and somewhat narrow and only narrowly divided at base; posterior process not elevated, long, narrow, finely dentate above; tegmina coarsely punctate to a little beyond middle, inner apical margin wrinkled; eyes prominent and piceous.

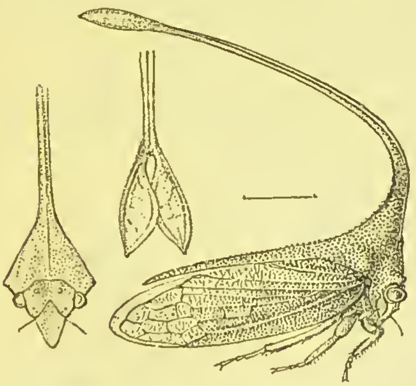

Fig. 9.—*Hybanda anodonta.*

Length 7 to 8 millim.

Hab. Assam (*fide Buckton*).—Malay Peninsula, Perak (*Doherty*).

Genus MAGUVA.

Maguva, *Melich. Hom. Faun. Ceylon*, p. 109 (1903).

Type, *M. horrida*, Melich.
Distribution. Ceylon.

"Lateral horns longly and obliquely directed upward, curved and sharply pointed at apices, compressed, the front and hind edges keeled, the upper surface with two keels, the lower with one longitudinal keel; the posterior process smooth, laterally compressed, rectangulated, the projecting branch widened in middle and beneath, the laminate widening provided behind with a short tooth, the sides of the projection furnished with a keel, the upper ridge of the projection produced as a middle keel on the pronotum; tegmina strongly transversely wrinkled, with four apical veins; legs moderately long." (*Melichar.*)

I have refrained from proposing a divisional section for this genus, of which I have no personal knowledge.

2117. **Maguva horrida**, *Melich. Hom. Faun. Ceylon*, p. 109, t. ii, f. 21 (1903).

"Head and pronotum dark brown, deeply punctured, with short, scanty, depressed, yellowish pubescence; pronotum dirty yellow at base and thickly punctured; tegmina strongly wrinkled, rusty-brown; along the costal margin deeply punctured and rather darker coloured with short yellowish hairs in the points; wings hyaline, smoky brown, with pitchy-brown veins; legs pitchy-brown; abdomen black." (*Melichar.*)

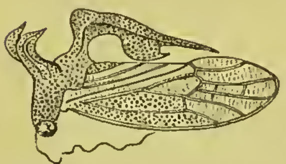

Fig. 10.—*Maguva horrida.*

Length ♀ 9; breadth lat. pronot. process. 7 millim.
Hab. Ceylon.

I have not seen this species and therefore reproduce Dr. Melichar's description and figure.

Division *MICREUNARIA.*

Scutellum longer than broad, apically acuminate; sides of pro- and mesosterna unarmed; pronotum posteriorly or discally more or less elevated; tibiæ rarely dilated; wings with four apical areas.

The name of this division is derived from *Micreune*, Walk., a Malayan genus.

Synopsis of Genera.

A. Pronotum strongly discally elevated .... Leptobelus, p. 15.
B. Pronotum not strongly discally elevated.
a. Pronotal posterior process strongly elevated at base .... Maarbarus, p. 16.
b. Pronotal posterior process curved, but not strongly elevated at base.
a. Veins to apical areas of tegmina straight or nearly straight .... Telingana, p. 17.
b. Veins to apical areas of tegmina curved inwardly.
a'. Anterior pronotal processes produced laterally .... Parapogon, p. 22.
b'. Anterior pronotal processes longly produced horizontally .... Bathoutha, p. 23.

Genus **LEPTOBELUS**.

Leptobelus, *Stål, Hem. Afr.* iv. p. 86 (1866); *id. Öfv. Vet.-Ak. Förh.* 1869, pp. 280 & 284 (*a*); *Atkins. J. A. S. B.* liv, p. 81 (1885).

Type, *L. dama*, Germ.

Distribution. Oriental Region.

Face without a lateral lobe, gradually narrowed; sides of the sternum unarmed; pronotum with the disk elevated, the elevated portion armed on each side with a transverse spinous process, and posteriorly with a slender process which is extended parallel with but high above the body; scutellum longer than broad, gradually but strongly narrowed toward the apex which is slightly and narrowly obtusely or subsinuately truncated; exterior discoidal area of tegmina petiolated; wings with four apical areas; tibiæ slightly dilated.

2118. **Leptobelus dama**, *Germ.* (Centrotus) *in Silb. Rev. Ent.* iii, p. 258 (1835); *Fairm. Ann. Soc. Ent. Fr.* 1846, p. 510, t. iii, f. 14; *Stål* (Leptobelus), *Berl. Ent. Zeitschr.* 1866, p. 386; *Atkins. J. A. S. B.* liv, p. 81 (1885).

Head, pronotum, and scutellum black; posterior area of

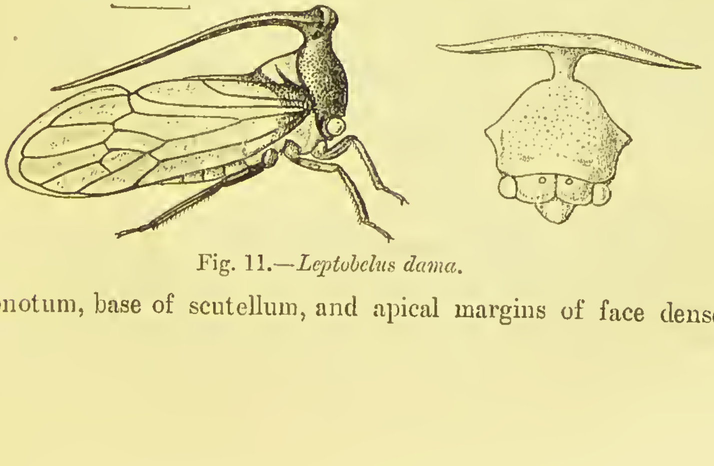

Fig. 11.—*Leptobelus dama.*

pronotum, base of scutellum, and apical margins of face densely

cretaceously sericeous ; legs and abdomen beneath black, the first more or less greyishly pilose, the latter more distinctly so; tegmina pale bronzy, the base black, followed by a large transverse dull ochraceous spot; pronotum thickly and somewhat coarsely punctate, the discal transverse processes seen from behind more prominently recurved than when viewed in front, their apices acute, the posterior process curved and a little undulated, strongly tricarinate above; scutellum beyond the cretaceous base finely thickly punctate; black basal area of tegmina thickly coarsely punctate.

Length 9½ ; breadth lat. pronot. process. 5 millim.

Hab. India (*fide Fairmaire*).—Java.

2119. **Leptobelus gazella,** *Fairm.* (Centrotus) *Ann. Soc. Ent. Fr.* 1846, p. 510; *Stål* (Leptobelus), *Berl. Ent. Zeitschr.* x, p. 386 (1866); *Atkins, J. A. S. B.* liv, p. 81 (1885); *Buckt.* (Leptocentrus) *Monogr. Membrac.* p. 235, t. liii, f. 5 *a* (1903).

Indigo-black; legs castaneous; tegmina brownish-ochraceous, dark castaneous at base; pronotum and its processes thickly punctate, lateral processes wide, recurved, three-cornered or tricarinate, posterior process almost straight, centrally and

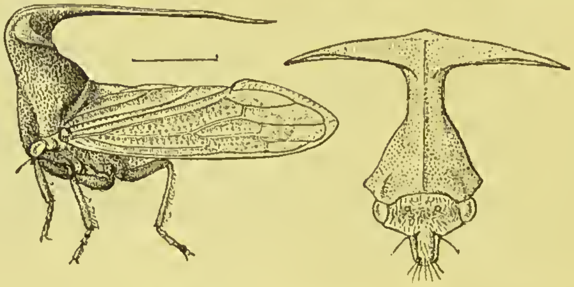

Fig. 12.—*Leptobelus gazella.*

laterally carinate, the central carination continued throughout the pronotum; scutellum elongate, more or less white at base (this character is to be best seen in fresh specimens); tegmina with the apical area distinctly wrinkled; tarsi paler than tibiæ; pronotum finely palely pilose.

Length 8 to 10; breadth lat. pronot. process. 6 millim.

Hab. Assam (*Coll. Dist.*); Nága Hills (*Doherty*). Burma; Ruby Mines (*Doherty*).

Genus **MAARBARUS**, nov.

Type, *M. bubalus*, Kirby.

Distribution. Ceylon.

Scutellum exposed, elongate, subtriangular, considerably longer than broad; pronotum with two curved lateral processes; the posterior process obliquely rising from base of pronotum and then straightly obliquely turned downward, not reaching apex of

tegmina, its apical portion becoming gradually acuminate; tegmina with four apical areas; wings with four apical areas; tibiæ simple.

2120. **Maarbarus bubalus**, *Kirby* (Centrotus), *J. Linn. Soc., Zool.* xxiv, p. 167 (1891); *Melich.* (Platybelus) *Hom. Faun. Ceylon*, p. 120 (1903).

Black; lateral margins of the pronotum and sternum and base of scutellum ochraceously sericeous; anterior legs testaceous, intermediate and posterior legs stramineous, apices of tibiæ and tarsi piceous; tegmina stramineous, the base, costal area to beyond middle, a costal apical spot and a transverse spot near inner

Fig. 13.—*Maarbarus bubalus.*

angle, black; pronotum somewhat coarsely punctate, the lateral processes strongly recurved and apically acuminate, distinctly carinate; posterior process compressed, centrally and laterally carinate, the central carination continued through pronotum; scutellum beyond base coarsely punctate; tegmina with the black basal and costal areas coarsely punctate.

Length $6\frac{1}{2}$; breadth lat. pronot. process. 5 millim.

Hab. Ceylon (*Lewis*); Pundaluoya, Maskeliya (*Green*).

2121. **Maarbarus? cinctus**, *Buckt.* (Leptocentrus) *Monogr. Membrac.* p. 236, t. liii, f. 8, *a*, *b* (1903).

I can find no trace of this species in the Buckton Collection. Judging from the figure it may probably belong to this genus.

" Small and slender, with rather erect and sharp suprahumerals. Posterior horn rising erect from the dorsum and then reflected as a thin and free process to the tip of the tegmina. Colour brown, with a broad and white tomentose band at the margin of the pronotum, which band is continued below the abdomen and covers the coxæ. Tegmina rather slender, with broad yellow neuration, narrow apicals, and with no limbal border. I could only count two discoidal areas, but an exact mapping out of venation in many species of the Centrotidæ is hardly attainable." (*Buckton.*)

" Size 7 × 3 millim."

Hab. " Calcutta."

Genus TELINGANA, nov.

Leptobelus, sect. *aa*, *b*, *Stål*, *Öfv. Vet.-Ak. Förh.* 1869, p. 284.

Type, *T. curvispina*, Stål.

Distribution. Oriental Region.

Principally differing from *Leptobelus* by the non- or little elevated disk of the pronotum and the distinctly curved posterior process. Pronotum with a transverse curved lateral process on each side, the posterior process very distinctly tricarinate; scutellum elongate, triangular, as in *Leptobelus*.

A. *Lateral pronotal processes curved.*

2122. **Telingana curvispina**, *Stål* (Leptobelus), *Öfv. Vet.-Ak. Förh.* 1869, p. 289; *Melich. Hom. Faun. Ceylon*, p. 115 (1903).
Leptocentrus imitator, *Buckt. Monogr. Membrac.* p. 234, t. liii, f. 2, *a* (1903).

Black; lateral margins of pronotum and sternum, and bases of scutellum densely ochraceously sericeous; tegmina dark shining stramineous, apical area dark ochraceous, the whole of the costal

Fig. 14.—*Telingana curvispina.*

area, the radial area beyond middle and base of claval area black; posterior tibiæ ochraceous; pronotum punctate, the lateral processes transverse and recurved, a little upwardly raised, their apices subacute; posterior process curved downward from near base, above very strongly tricarinate, the central carination continued throughout pronotum; scutellum nearly twice longer than broad, finely punctate; tegmina strongly punctate on the black basal and anterior areas.

Length $7\frac{1}{2}$; breadth lat. pronot. process. $4\frac{1}{2}$ millim.

Hab. Ceylon; Maskeliya (*Green*).

2123. **Telingana paria**, *Fairm.* (Centrotus) *Ann. Soc. Ent. Fr.* 1846, p. 513; *Atkins. J. A. S. B.* liv, p. 83 (1885).

Head and pronotum ferruginous-brown or pale castaneous; scutellum (excluding apex) and lateral areas of sternum cretaceously

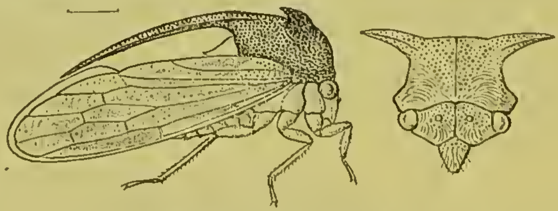

Fig. 15.—*Telingana paria.*

sericeous; abdomen beneath greyishly pilose; legs brownish-ochraceous; tegmina very pale ochraceous, subhyaline, opaque

and punctate at base; pronotum thickly and somewhat coarsely punctate; lateral transverse processes as seen from above somewhat short, recurved, strongly carinate near middle, apices obtusely acute, anterior margins ridged, as viewed in front more slender and less strongly recurved; posterior process slender, well separated from scutellum at base, above tricarinate, its apex acute and almost touching tegmina near the posterior angle of the inner margin, the central carination more finely continued through pronotum; legs normal.

Length $5\frac{1}{2}$; breadth lat. pronot. process. 3 millim.

Hab. N. Bengal (*Brit. Mus.*).

2124. **Telingana canescens,** *Buckt.* (Leptocentrus) *Monogr. Membrac.* p. 234, t. liii, f. 1 (1903).

Black; lateral margins of pronotum, sternum and abdomen beneath, and the whole of the scutellum densely ochraceously sericeous; intermediate and posterior tibiæ and the apices of the femora ochraceous; tegmina bronzy-yellow, the anterior area and base of claval area black; pronotum punctate, subgranulose; the lateral processes broadly, transversely and a little upwardly extended, their apices recurved and subacute, above tricarinate; posterior process long, almost reaching apex of tegmina, moderately curved from near base, above tricarinate, the central carination continued throughout pronotum; tegmina coarsely punctate at base and to about middle of anterior area.

Length 8 to 9; breadth lat. pronot. process. 6 millim.

Hab. Sikhim; Mungphu (*Atkinson*). Tenasserim; Myitta (*Doherty*).

Buckton described his species as from "Honduras." This is clearly owing to a wrong habitat having been given to him with the type specimen, which is now in my own collection.

2125. **Telingana capistrata,** sp. n.

Piceous-black; lateral margins of the pronotum and a central longitudinal discal fascia to same divided by a dark carinate line,

Fig. 16.—*Telingana capistrata.*

scutellum and intermediate and posterior tibiæ ochraceous; tegmina bronzy, inner apical margin beyond clavus and costal

area beyond middle piceous-black; veins dark castaneous; pronotum granulose, the lateral processes strongly recurved and centrally and laterally carinate above; posterior process strongly curved from base to near apex, slender, apically attenuated, centrally and laterally carinate above; tegmina with the basal and costal dark areas punctate.

Length 8 to 10½; breadth lat. pronot. process. 5½ to 6 millim.

Hab. Assam; Margherita (*Atkinson Coll.*). Burma; Ruby Mines (*Doherty*).

2126. **Telingana decipiens,** *Kirby* (Centrotus), *J. Linn. Soc., Zool.* xxiv, p. 165 (1891); *Motsch.* (*Walk. MS.*) *Bull. Soc. Nat. Mosc.* xxxvi (2) p. 96 (1863); *Melich.* (Leptocentrus) *Hom. Faun. Ceylon,* p. 117 (1903).

Head, pronotum, and scutellum black; lateral margins of pronotum, base of scutellum, and the sternum cretaceously sericeous; legs testaceous; abdomen beneath black, more or less cretaceously

Fig. 17.—*Telingana decipiens.*

pilose; tegmina pale bronzy, base and costal area black; pronotum thickly punctate, centrally longitudinally carinate; the transverse processes tricarinate above, apically subacute, seen from behind distinctly recurved, viewed in front almost obliquely straight; the posterior process curved near base and directed downward, tricarinate above; scutellum beyond cretaceous base thickly finely punctate; black basal and costal areas of tegmina thickly coarsely punctate.

Length 6; breadth lat. pronot. process. 3½ millim.

Hab. Ceylon (*Brit. Mus.*).

2127. **Telingana flavipes,** *Kirby* (Centrotus), *J. Linn. Soc., Zool.* xxiv, p. 165 (1891).

Centruchus atricoxis, *Melich.* (part.) *Hom. Faun. Ceylon,* p. 113 (1903).

Head and pronotum black, somewhat thickly greyishly pilose; scutellum, lateral margins of pronotum, and sternum greyishly sericeous; legs ochraceous, extreme apices of tibiæ and apices of tarsi piceous; abdomen beneath more or less greyishly sericeous; tegmina pale castaneous, the base and costal area piceous; pronotum punctate; the lateral processes as seen from behind

recurved, as viewed from the front less prominently so, above with a strong central carination, their apices subacute; posterior

Fig. 18.—*Telingana flavipes.*

process recurved from near base, above tricarinate, the central carination continued through pronotum; tegmina with the piceous areas coarsely punctate and slightly pilose.

Length $6\frac{1}{2}$; breadth lat. pronot. process. 5 millim.

Hab. Assam; Margherita (*Coll. Dist.*). Ceylon; Kandy, Peradeniya, Nawalapitya (*Green*).

Melichar (*supra*) has included this species as a synonym of *Centruchus atricoxis*, Kirby, probably from its describer having stated that it might prove to be a variety of that species. The two species are, however, not congeneric.

B. *Lateral pronotal processes almost obliquely straight.*

2128. **Telingana imitator**, *Kirby* (Centrotus), *J. Linn. Soc., Zool.* xxiv, p. 167 (1891); *Melich.* (Leptocentrotus) *Hom. Faun. Ceylon*, p. 118 (1903).

Indigo-black; lateral margins of pronotum and sternum, and base of scutellum cretaceously sericeous; legs pale ochraceous; tegmina stramineous; base and about basal half of costal area black; pronotum thickly finely punctate, the lateral processes

Fig. 19.—*Telingana imitator.*

obliquely straight, a little directed backward; posterior process curved, considerably shorter than tegmina, centrally and laterally carinate above, the central carination continued through pronotum; scutellum longer than broad, coarsely punctate; tegmina coarsely punctate on the black area at base and on costal area.

Length 5; breadth lat. pronot. process. $2\frac{1}{2}$ millim.

Hab. Ceylon; Pundaluoya (*Green*).

2129. **Telingana pallipes**, *Stål* (Leptobelus), *Öfv. Vet.-Ak. Förh.* 1869, p. 284; *Atkins. J. A. S. B.* liv, p. 82 (1885).

"Black, distinctly punctate; lateral margins of pronotum and sternum, and base of scutellum densely ochraceously sericeous; tegmina sordidly vinaceous, base of clavus, entire costal area and radial area at base and outwardly beyond middle black, punctate; lateral processes of pronotum slender, moderate, gradually acuminate, straight, turning outwards, above unicarinate, beneath bicarinate; posterior process slightly curved towards the base, thence straight, distant from the scutellum; legs yellow-ferruginous.

"Like *T. curvispina*, Stål, but lateral processes of pronotum shorter, more slender, turning outwards, very little upward; posterior process not reaching the apex of the scutellum; face narrower at apex." (*Stål.*)

"Length 5 to 5½; breadth 2 millim."

Hab. India (*fide Stål*).

Genus **PARAPOGON**, nov.

Type, *P. kandyiana*, Dist.

Hab. Ceylon.

Allied to *Telingana*, from which it differs by the veins to the apical area of the tegmina being strongly curved inwardly as in the genus *Pogon*. Apart from this character and the produced lateral processes of the pronotum, *Parapogon* has a strong superficial resemblance to *Machærotypus*.

2130. **Parapogon kandyiana**, sp. n.

Head and pronotum black, finely, shortly, palely pilose; a spot on each side of base and another near apex of scutellum cretaceously sericeous; basal margin of front of pronotum and some angulate markings on its posterior lateral areas, lateral margins of clypeus, and sternum and abdomen beneath more or

Fig. 20.—*Parapogon kandyiana.*

less cretaceously sericeous; legs testaceous; tegmina subhyaline; base and anterior area for about two-thirds the length and a spot on inner margin near end of clavus piceous, finely palely pilose, the whole inner area bronzy, the apex hyaline; pronotum finely punctate; the lateral processes as seen from above slender, very slightly upturned and moderately directed backward, apices acute;

posterior process obliquely robust at base, thence slender, oblique and dull castaneous to apex, which passes the posterior angle of the inner margin of tegmina.

Length 4; breadth lat. pronot. process. 2 millim.

Hab. Ceylon; Kandy (*Green*).

Genus **BATHOUTHA**, nov.

Type, *B. indicans*, Walk.

Distribution. Ceylon.

Pronotum long, posteriorly truncate, lateral angles produced anteriorly into longitudinal, slightly directed upward processes; posterior process emitted from near base, slender, curved, extended well above scutellum and tegmina, lateral posterior angles subacutely prominent; scutellum completely exposed, longer than broad, centrally, finely longitudinally carinate; tegmina with the veins to lateral areas curved inwardly, gradually widened from base but apically subacutely narrowed; legs simple; eyes prominent.

2131. **Bathoutha indicans**, *Walk.* (Oxyrhachis) *List Hom., Suppl.* p. 128 (1858); *Melich. Hom. Faun. Ceylon*, p. 108 (1903).

Pronotum above and scutellum black: thickly covered with minute clusters of short pale greyish hairs; front of pronotum, face, sternum and abdomen beneath more or less cretaceously sericeous; tegmina piceous, becoming bronzy-brown on inner and costal apical areas; femora castaneous, their apices and the

Fig. 21.—*Bathoutha indicans.*

whole of the tibiæ and tarsi ochraceous; lateral pronotal processes as seen from above moderately slender, three-cornered, directed almost longitudinally but a little upwardly and outwardly, their apices outwardly broadened and concavely truncate; posterior process slender, tricarinate above, strongly curved and elevated above both scutellum and tegmina, its apex finely acute and slightly recurved; scutellum with a fine central carination.

Length $7\frac{1}{2}$; breadth lat. pronot. process. 4 millim.

Hab. Ceylon (*Brit. Mus.*); Yatiyantota (*Green*).

Division *ACANTHOPHYESARIA.*

This division includes a few genera, mostly Neotropical, which have a downward prolongation beneath the posterior pronotal process, sometimes connecting it with the scutellum.

*Synopsis of Genera.**

A. Posterior pronotal process united with the apex of scutellum by a distinct perpendicular prolongation .... DOGRANA, p. 24.
B. Posterior pronotal process impinging on scutellum near its apex .... INDICOPLEUSTES, p. 25.

Genus **DOGRANA**, nov.

Type, *D. suffulta*, Dist.

Distribution. Oriental and Malayan Regions.

Face moderately transversely globose between the eyes; ocelli almost as far apart from eyes as from each other; pronotum with the anterior angles produced in transverse spinous processes; the posterior process curved from base and united with the apex of the scutellum, after which it is more straightly and more slenderly continued to above the inner angle of the tegmina; scutellum a little longer than broad, its apex merged in the connecting support of the posterior pronotal process; tegmina with the claval area long, the exterior claval vein united with claval margin beyond middle, the arrangement of the veins and areas shown by fig. 22; legs simple.

The *Campylocentrus falco*, Buckt., from the Philippines belongs to this genus.

2132. **Dograna suffulta,** sp. n.

Head, pronotum, and scutellum black; base of scutellum, lateral

Fig. 22.—*Dograna suffulta.*

margins of clypeus, and lateral margins of sternum cretaceously sericeous; abdomen beneath black; legs testaceous; tegmina

* *Acanthophyes* belongs to this division, but I have not seen a specimen of the only species recorded from British India.

pale bronzy, the base black; pronotum coarsely punctate, the lateral transverse processes grooved above, their apices acute, moderately recurved as seen from behind; the posterior process tricarinate above, the apical portion slender and somewhat testaceous in hue; scutellum beyond the basal cretaceous area, which is somewhat gibbous and bilobed, thickly punctate; tegmina with the black basal area coarsely punctate and followed by an obscure paler transverse fascia.

Length 7; breadth lat. pronot. process. $3\frac{1}{2}$ millim.

Hab. Bombay (*Dixon*).

Genus INDICOPLEUSTES, nov.

Type, *I. albomaculatus*, Dist.

Distribution. Ceylon.

Pronotum somewhat long, posteriorly truncate, centrally strongly longitudinally carinate; lateral transverse processes only of moderate size, upwardly recurved; the posterior process strongly curved and raised above scutellum but impinging on it near its apex, then narrowed and following the curve of the inner margin of the tegmina of which its apex reaches the inner angle; scutellum almost fully exposed, nearly as long as broad; tegmina with the lateral areas inwardly curved (as in *Pogon*, Buckt.); legs simple.

2133. Indicopleustes albomaculatus, sp. n.

Fuscous-brown, somewhat densely sprinkled with small tufts of short pale hairs; a small spot on each side of base of scutellum and a spot at posterior angle of inner margin and another central spot near end of radial area of tegmina, white; lateral areas of sternum cretaceously sericeous, abdomen beneath more sparingly so; lateral transverse pronotal processes somewhat short, broad,

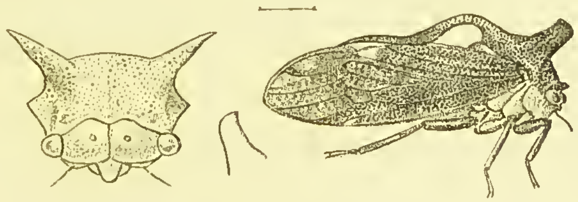

Fig. 23.—*Indicopleustes albomaculatus.*

upturned, almost centrally carinate from about halfway from base, the apex obtusely pointed; posterior process strongly tricarinate above, impinging on the scutellum at its apex; tegmina with the two lower apical areas pale fuliginous.

Length $4\frac{1}{2}$ to 5; breadth lat. pronot. process. $2\frac{1}{2}$ millim.

Hab. Ceylon; Peradeniya (*Green*).

2134. **Indicopleustes curvatus,** *Melich.* (Centrotus) *Hom. Faun. Ceylon,* p. 112 (1903).

"Small species, distinguished by the remarkably strong wave-like, curved, posterior spine process and the short, obliquely truncated, transverse, lateral horns. Pitchy-brown, thickly punctate, with very short yellowish hair; the lateral processes rather broad, prismatic, rising obliquely upward, truncated at end, front angles rounded off, the hinder pointed; posterior process prismatic, strongly curved at base so that there is a free space between the scutellum, the middle of process impinging on scutellum and thence wave-like, curved, the sharp point directed downward; on the pronotum a distinct middle keel losing itself in the upper corner of the spine process; tegmina pitchy-brown, thickly punctured at the base to half; wings fuliginous; underside pitchy-brown: anterior legs rusty-brown, intermediate and posterior legs pale yellow." (*Melichar.*)

Differs from *I. albomaculatus* in the smaller size, truncate apices to the lateral pronotal processes, different colour of the legs, etc. The sternum and the base of the scutellum is cretaceously sericeous.

Length 4 to $4\frac{1}{2}$; breadth lat. pronot. process. 3 millim.

Hab. Ceylon; Kandy, Peradeniya (*Green*).

Genus ACANTHOPHYES.

Acanthophyes, *Stål, Hem. Afric.* iv, pp. 87 & 89 (1866); *id. Öfv. Vet.-Ak. Förh.* 1869, p. 281; *Atkins. J. A. S. B.* liv, p. 84 (1885).

Type, *A. albipennis*, Stål, a South-African species.*

Distribution. Ethiopian and Oriental Regions.

"Thorax much elevated between the lateral angles, very often cornuted above the same angles; posterior process remote from the scutellum, bisinuate beneath, more or less amplified or lobed in the middle, between the sinus, with the amplified part reaching the dorsum of the abdomen or the apex of the scutellum; tegmina with five apical, two discoidal areas; wings with four apical areas: tibiæ simple." (*Stål.*)

2135. **Acanthophyes capra,** *Fabr.* (Membracis) *Ent. Syst. Suppl.* p. 514 (1798); *id.* (Centrotus) *Syst. Rhyng.* p. 20 (1803); *Stål* (Acanthophyes), *Hem. Fabr.* ii, p. 50 (1869); *Atkins. J. A. S. B.* liv, p. 84 (1885).

"Ferruginous-black or ferruginous, remotely flavescent greyish-

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* Stål, when he originally described this genus, first mentioned the species *Centrotus hamifer*, Fairm. and *C. curvidens*, Fairm. as belonging to it. Subsequently (1869) he included both these species in his genus *Campylocentrus*. It seems, therefore, necessary to take the Ethiopian *A. albipennis*, Stål, as type of the genus *Acanthophyes*.

sericeous, two small basal spots on scutellum and sides of sternum very densely sericeous; lateral pronotal processes depressed, truncated, bicarinate above.

"Head between eyes a little shorter than broad, beneath the eyes abruptly and very much narrowed; face gradually slightly narrowed, subtruncate, freely produced downward for some distance; pronotum punctured, armed on both sides anteriorly above the lateral angles with a depressed horn-like process, very slightly narrowed towards the apex, truncated at apex, bicarinate above and beneath; anterior apical angle of the processes rounded, posterior somewhat acute; posterior process distinctly carinate, very broadly sinuate in the middle above, a little amplified beneath in the middle, reaching the apex of the scutellum, very slightly decurved towards the apex; tegmina fuscous-ferruginous or ferruginous-grey, punctured at the base." (*Stål.*)

Length $6\frac{1}{2}$; exp. lat. pronot. process. $4\frac{1}{2}$ millim.

Hab. Tranquebar.

I do not know this species.

Division *LEPTOCENTRARIA.*

Scutellum transverse, nearly equally long as broad, the apex broad, sinuate or truncate, and on each side prominently dentate; wings with four apical areas.

Synopsis of Genera.

A. Veins to apical areas of tegmina straight.
- a. Posterior pronotal process remote from scutellum.
  - *a.* Posterior pronotal process curved at base and then obliquely directed downward, its apex touching or nearly touching the posterior angle of inner tegminal margin; sometimes passing it .... LEPTOCENTRUS, [p. 28.
  - *b.* Posterior pronotal process straight, not curved at base, not obliquely directed downward, its apex remote from tegmina and scarcely reaching posterior angle of inner tegminal margin................ NILAUTAMA, p. 32.
- b. Posterior pronotal process robust, more or less impinging on scutellum and inner tegminal margin.
  - *a.* Pronotum more or less gibbous before base of posterior process.
    - *a'*. Pronotal lateral processes in a continuous line with the crescentic anterior margin of pronotum................ EMPHUSIS, p. 36.
    - *b'*. Pronotal lateral processes divergent from line of anterior margin of pronotum .. CENTROTYPUS, [p. 33.
  - *b.* Pronotum not gibbous before base of posterior process, but in a continuous line with it .... PERIAMAN, p. 37.

c. Posterior pronotal process slender, scarcely or slightly elevated above scutellum, but as a rule not elevated above tegmina .... OTINOTUS, p. 39.

B. Veins to apical areas of tegmina strongly curved inwardly .... POGON, p. 42.

Genus **LEPTOCENTRUS.**

Leptocentrus, *Stål, Hem. Afr.* iv, pp. 87 & 90 (1866); *id. Öfv. Vet.-Ak. Förh.* 1869, p. 281; *Atkins. J. A. S. B.* liv, p. 85 (1885); *Melich. Hom. Faun. Ceylon*, p. 116 (1903).

Type, *L. bos*, Sign., a West-African species.

Distribution. Ethiopian and Oriental Regions.

Front of pronotum more or less obliquely prominent towards face; pronotum with anteriorly produced transverse processes; posterior process slender, tricarinate, emitted a little before the posterior margin of the pronotum, well separated from the scutellum and abdomen, sometimes, but seldom, posteriorly touching the interior margin of the tegmina, neither sinuated beneath nor medially amplified; scutellum transverse, nearly equally long as broad, apically emarginate and of moderate size; tegmina with five apical, two discoidal areas, none of them petiolated; wings with four apical areas; tibiæ simple.

2136. **Leptocentrus taurus**, *Fabr.* (Membracis) *Syst. Ent.* p. 676 (1775); *id.* (Centrotus) *Syst. Rhyng.* p. 20 (1803); *Oliv.* (Membracis) *Enc. Méth.* vii, p. 665 (1792); *Stål* (Leptocentrus), *Hem. Fabr.* ii, p. 50 (1869); *Atkins. J. A. S. B.* liv, p. 85 (1885); *Melich. Hom. Faun. Ceylon*, p. 116 (1903).

Membracis rupicapra, *Fabr. Ent. Syst. Suppl.* p. 514 (1798); *id.* (Centrotus) *Syst. Rhyng.* p. 18 (1803).

Membracis tricornis, *Hardw. Zool. Journ.* iv, p. 114, *Suppl.* t. xxx, ff. *c, d, f* (1828).

Centrotus terminalis, *Walk. List Hom.* ii, p. 604 (1851); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 491; *Melich. Hom. Faun. Ceylon*, p. 109 (1903).

Centrotus vicarius, *Walk. tom. cit.* p. 605.

Leptocentrus gazella, *Buckt. Monogr. Membrac.* p. 235, t. liii, f. 5 *a* (1903).

Head and pronotum black; scutellum and sternal lateral margins cretaceously sericeous; body beneath black; legs castaneous, sometimes the femora piceous; tegmina pale bronzy-ochraceous, a narrow pale piceous submarginal streak beyond middle of costa; pronotum thickly coarsely punctate; the transverse lateral processes robust, strongly recurved, above tricarinate, the central carination nearer posterior than anterior margin, apices subacute; the pronotal front and face in fresh specimens are thickly palely ochraceously pilose; posterior frontal process strongly tricarinate above, curved and apically touching the interior margin of the tegmina, the central carination continued through

pronotum; tegmina narrowly opaque and punctate at base; lateral pronotal processes as seen in front apparently much narrower and less recurved.

Length 6 to 8; breadth lat. pronot. process. 5 to 6 millim.

Fig. 24.—*Leptocentrus taurus.*

Hab. Assam, Margherita (*Atkinson*); Calcutta; Sikhim (*fide Atkinson*); Tenasserim, Myitta (*Doherty*); Mergui.—Borneo (*Coll. Dist.*); Timor (*Coll. Buckton*).

Melichar adds one of the following species, *L. leucaspis*, Walk., as a synonym of this species, but he places *terminalis* Walk. = *vicarius*, Walk. in the genus *Centrotus*; he had, however, probably not seen these forms. Walker himself (List Hom. Suppl. p. 158) admitted that his *terminalis* was a variety of *taurus*.

Buckton gives to the specimen he identified as *L. gazella* the habitat Ceylon, but I cannot corroborate it.

2137. **Leptocentrus substitutus,** *Walk.* (Centrotus) *List Hom.* ii, p. 605 (1851); *Atkins. J. A. S. B.* liv, p. 87 (1885); *Melich. Hom. Faun. Ceylon*, p. 110 (1903).

Centrotus flexicorne, *Walk. Ins. Saund., Hom.* p. 78 (1858); *Atkins.* (Centrotus ?) *J. A. S. B.* lv, p. 197 (1886).

Centrotus obliquus, *Walk. Ins. Saund., Hom.* p. 79 (1858); *Atkins.* (Centrotus ?) *J. A. S. B.* lv, p. 197 (1886).

Closely allied to *L. taurus*, Fabr., but smaller; posterior pronotal process less arched at base and more obliquely straight, the lateral transverse posterior processes less prominently recurved and their apices less acute. These characters appear to be constant, and I have seen a very long series of specimens from Ceylon.

Length 6 to $6\frac{1}{2}$; breadth lat. pronot. process. $4\frac{1}{2}$ to 5 millim.

Hab. North Bengal (*Brit. Mus.*); Calcutta (*Coll. Dist.*); Bombay (*Dixon*). Ceylon; Peradeniya, Elephant Pass, Balangoda, Colombo, Yatiyantota, Kelani Valley (*Green*).

The unique type of Walker's *flexicorne* is in a mutilated condition, but I have no doubt as to its identity.

"Frequents and breeds upon a thorny *Capparis*. Its larvæ mimic the thorns most effectively, as do also the adult insects.

The former rest head downwards, the latter head upwards, thus bringing the curve of their spines in the right direction." (*E. E. Green in litt.*)

2138. **Leptocentrus reponens,** *Walk.* (Centrotus) *List Hom.* ii, p. 604 (1851); *Atkins.* (Leptocentrus) *J. A. S. B.* liv, p. 86 (1885); *Melich.* (Centrotus) *Hom. Faun. Ceylon,* p. 110 (1903).
Centrotus antilope, *Stål, Freg. Eug. Resa, Ins.* p. 284 (1859); *id.* (Leptocentrus) *Öfv. Vet.-Ak. Förh.* p. 727 (1870).

Head, pronotum, and scutellum black; face thickly ochraceously pilose; basal two-thirds of scutellum and lateral areas of sternum cretaceously sericeous; abdomen beneath black, more or less sparingly cretaceously sericeous; legs piceous; tegmina pale bronzy, base piceous and punctate, basal costal margin narrowly piceous.

Allied to the two preceding species but differing by the shape of the transverse pronotal processes, which are much broader above and somewhat foliaceously convex at their anterior margins.

Length $6\frac{1}{2}$; breadth lat. pronot. process. 5 millim.

Hab. North Bengal (*Brit. Mus.*). Tenasserim; Myitta (*Doherty*).—Sumatra; Philippines.

Both Walker and Melichar included this species in their enumeration of Cingalese Membracidæ, but I have found no example in the extensive collection made of these insects in Ceylon by Mr. Green.

2139. **Leptocentrus leucaspis,** *Walk.* (Centrotus) *List Hom. Suppl.* p. 158 (1858); *Buckt.* (Leptocentrus) *Monogr. Membrac.* p. 235 t. liii, f. 3, *a*, *b* (1903).
Centrotus taurus, *Walk.* (*nec Fabr.*) *List Hom.* ii, p. 602 (1851).

Head, pronotum, and scutellum black; basal two-thirds of scutellum and lateral areas of sternum cretaceously sericeous; abdomen beneath black, legs piceous; tegmina shining ochraceous, the costal margin, obscurely at base, black; pronotum coarsely

Fig. 25.—*Leptocentrus leucaspis.*

punctate; the lateral transverse processes slender, centrally carinate above and somewhat strongly recurved; the posterior process tricarinate above, recurved from near base and touching

the apex of the interior margin of tegmina which are punctate at base.

Length 7 to 9; breadth lat. pronot. process. 4½ to 7 millim.

Hab. Chatrapur (*Stebbing*), Dum Dum (*Paiva*). Ceylon; Kandy, Pundaluoya, Maskeliya, Peradeniya (*Green*).—Philippines (*Coll. Dist.*).

This and the following species *L. mephistopheles* are to be distinguished by the long and slender lateral transverse pronotal processes.

2140. **Leptocentrus mephistopheles**, *Buckt. Monogr. Membrac.* p. 235, t. liii, f. 4 (1903).

Buckton thus describes this species :—"This insect differs from *L. leucaspis* in wanting the white tomentose patches on the dorsum and in the browner colour of the pronotum. The abdomen of the male is stout and ringed and the pronotal posterior is shorter and rather more curved. The supra-humerals are somewhat slender, but variation is common as to their curvatures. The tegmina are hyaline."

Buckton's unique type is now in my possession but in a mutilated condition; the colour of the legs is a distinctive character as compared with *L. leucaspis*, very pale ochraceous, the femora (excluding apices) and the apices of the tarsi piceous; the tegmina are pale ochraceous, subhyaline; otherwise it seems (so far as a crushed specimen allows comparison to be made) to conform to the general characters of Walker's species.

Length 8; breadth lat. pronot. process. 5 millim.

Hab. Sikhim (*Pilcher*).

2141. **Leptocentrus longispinus**, sp. n.

Head, pronotum, body beneath, and legs black, more or less longly palely pilose; base of scutellum and lateral areas of sternum cretaceously sericeous; tegmina pale ochraceous, subhyaline, extreme base and broad costal area to apex black; pronotum coarsely punctate, somewhat thickly longly pilose on disk and front; the lateral processes very long, as seen from above moderately regularly curved backward, prominently longitudinally carinate near posterior margin, the anterior margin a little upwardly recurved, apex subacute, as seen in front much narrower, widely divergent, obliquely directed upward; posterior process slender, tricarinate, moderately curved to apex which passes the posterior angle of the inner margin of tegmina, widely separated from scutellum, impinging on tegmina at apex, the central carination finely continued through pronotum; face thickly longly pilose; tegmina punctate at base; legs pilose.

Length 9; breadth lat. pronot. process. 9 millim.

Hab. Burma (*Brit. Mus.*).

A species to be recognized by the length of the lateral pronotal processes.

2142. **Leptocentrus ustus**, *Buckt. Monogr. Membrac.* p. 236, t. liii, f. 7 (1903).

The type of this species is not to be found in the Buckton collection. The description is as follows:—"Small, nearly black in colour. Posterior horn very slender and thin at the base. Tegmina lustrous, with fine brown neuration. Abdomen stout and nearly as long as the tegmina. Tibiæ slightly flattened.

"Size 5 × 3 mm."

Hab. "Ceylon, Madras."

2143. **Leptocentrus insignis**, sp. n.

Head and pronotum black; scutellum, lateral margins of pronotum, and the sternum cretaceously sericeous; abdomen beneath black, more or less cretaceously sericeous; legs black, apices of femora, the intermediate and posterior tibiæ and the tarsi (excluding apices) ochraceous; tegmina pale bronzy, base and costal area piceous; pronotum thickly and finely punctate and pilose, frontally palely pilose; lateral transverse processes somewhat short, roundly recurved, tricarinate above, their apices subacute; posterior process slender, tricarinate above, obliquely recurved, the central carination continued through pronotum; face thickly palely pilose; tegmina with the basal and costal piceous areas thickly punctate; scutellum about as long as broad.

Length 6 to $6\frac{1}{2}$; breadth lat. pronot. process. $3\frac{1}{2}$ millim.

Hab. Nicobar Islands; Nankauri (*Rogers*).—Borneo; Muching (*Hewitt*).

The type of this species is a Bornean specimen, that from the Nicobars being somewhat mutilated. It may be distinguished by the totally white scutellum and the broad lateral white margins to the pronotum.

Genus **NILAUTAMA**, nov.

Type, *N. typica*, Dist.

Distribution. Tenasserim.

Pronotum slightly elevated at base; the lateral transverse processes broad, robust, a little directed upward and very slightly apically recurved, strongly carinate behind middle; posterior process short, slender, emitted a little above base of pronotum, well elevated above scutellum and continued a little obliquely upward, the apex acute and almost extending to the point of the posterior angle of the inner margin of the tegmina; scutellum shorter than broad, its apex emarginate; tegmina ampliated towards middle and obtusely angularly narrowed at apex, with four apical areas; legs simple.

2144. **Nilautama typica**, sp. n.

Head and pronotum black; scutellum (excluding apex) and lateral margins of sternum cretaceously sericeous; legs pale castaneous; tegmina bronzy-ochraceous; costal area somewhat

broadly black; front of pronotum and face palely pilose; pronotum coarsely punctate, lateral transverse processes as seen from above broad, carinate behind middle, apex roundly truncate and a little

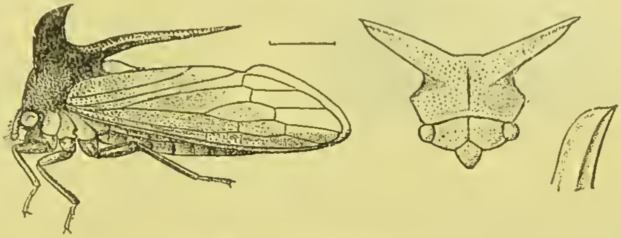

Fig. 26.—*Nilautama typica.*

recurved, as viewed in front narrow and obliquely upwardly divergent; posterior process tricarinate, apex acutely narrowed; tegmina coarsely punctate at base.

Length 7; breadth lat. pronot. process. $4\frac{1}{2}$ millim.

Hab. "India" (*Brit. Mus.*). Tenasserim; Myitta (*Doherty*).

Genus CENTROTYPUS.

Centrotypus, *Stål, Hem. Afr.* iv, p. 88 (1866); *id. Öfv. Vet.-Ak. Förh.* 1869, p. 281; *Atkins. J. A. S. B.* liv, p. 87 (1885).

Type, *C. amplicornis*, Stål, from Cambodia.

Distribution. Oriental and Malayan Regions.

Face gradually narrowed from base, without basal lobes on each side; posterior pronotal process not sinuated on each side from base to scutellum, never well separated from scutellum, gradually narrowed and covering the whole or almost the whole of the scutellum; posterior pronotal area distinctly centrally carinate, the carination either not or very obsoletely continued anteriorly, where it is replaced by a somewhat smooth line; sides of scutellum not prominent; scutellum only a little, seldom twice, as broad as the base of the posterior pronotal process; tegmina with five apical areas, costal and radial areas abbreviated at about the same distance from base.

2145. **Centrotypus flexuosus**, *Fabr.* (Membracis) *Ent. Syst.* iv, p. 12 (1794); *id.* (Centrotus) *Syst. Rhyng.* p. 18 (1803); *Fairm. Ann. Soc. Ent. Fr.* 1846, p. 516; *Stål* (Centrotypus), *Hem. Fabr.* ii, p. 51 (1869); *id. Öfv. Vet.-Ak. Förh.* 1869, p. 286; *Atkins. J. A. S. B.* liv, p. 87 (1885); *Buckt. Monogr. Membrac.* p. 237, t. liv, f. 1 (1903).

Centrotus anchorago, *Guér. Icon. Règ. An.* t. lix, f. 4 (1829–44).

Pronotum very dark indigo-blue; face, body beneath and legs dull black, more or less thickly, shortly, palely pilose; tegmina very pale ochraceous, the apical area broadly castaneous, the base and costal and radial areas bluish-black; pronotum coarsely punctate; the lateral transverse processes as seen from above broad, laminate, wrinkled, apically obliquely truncate, posteriorly

carinate, as frontally viewed narrow and apically upwardly recurved; posterior process not detached from tegmina, tricarinate,

Fig. 27.—*Centrotypus flexuosus.*

robust; lateral areas oblique and concave, coarsely punctate between the carinations.

Length 10; breadth lat. pronot. process. 8 to 8½ millim.

Hab. Sylhet, Sikhim, Assam (*Coll. Dist.*). Shillong, Sibsagar (*Ind. Mus.*). Burma; Arrakan (*Coll. Dist.*). Tenasserim; Myitta (*Doherty*).—Malacca (*Castelnau, Buckton Coll.*). Perak (*Doherty*).

2146. **Centrotypus assamensis,** *Fairm.* (Centrotus) *Ann. Soc. Ent. Fr.* 1846, p. 517; *Stål* (Centrotypus), *Öfv. Vet.-Ak. Förh.* 1869, p. 286; *Dist. J. A. S. B.* xlviii, p. 38 (1879); *Atkins. J. A. S. B.* liv, p. 88 (1885).
Centrotus costalis, *Walk. Ins. Saund., Hom.* p. 82 (1858).

In general coloration this species is scarcely to be differentiated from *C. flexuosus*, but the lateral transverse pronotal processes are less dilated, more convexly oblique and subacute apically, and

Fig. 28.—*Centrotypus assamensis.*

above with a more or less distinct anterior, as well as a very distinct posterior carination. These transverse processes, while thus to be always distinguished from those of *C. flexuosus*, are still variable in *C. assamensis* in length and in apical recurvence.

Length 10 to 11; breadth lat. pronot. process. 8 to 9½ millim.

Hab. Assam (*Coll. Dist.*). Sikhim and Pankabar (*Ind. Mus.*). Burma; Rangoon (*Coll. Dist.*). Tenasserim; Myitta (*Doherty*).—Malay Peninsula; Province Wellesley (*Distant*). Siam.

2147. **Centrotypus securis,** *Buckt. Monogr. Membrac.* p. 238, t. liv, f. 4 (1903).

Pronotum black; face thickly ochraceously pilose; body beneath

and legs piceous, thickly ochraceously pilose; tegmina shining ochraceous, a broad subcostal longitudinal fascia occupying posterior half of radial area and continued to apex, reaching costal margin on apical area, black; pronotum coarsely punctate; the lateral transverse processes long, somewhat broad and flat, tricarinate, the two posterior carinations closer together, apex broad, roundly oblique; posterior process long, passing the exterior angle of inner margin, punctate, tricarinate, apically acute; tegmina with the black apical costal area coarsely punctate; tarsi pale castaneous.

Length 10; breadth lat. pronot. process. 10 millim.

Hab. Sikhim; Mungphu (*Brit. Mus.*). Nága Hills (*Doherty*). Nilgiri Hills (*Hampson*). Bombay (*Dixon*). Burma; Ruby Mines (*Doherty*).

This species can be easily separated from the preceding two by the longer and tricarinate transverse pronotal processes, the longer and more apically acute posterior process, and the different colour of the tegmina.

2148. **Centrotypus ortus**, sp. n.

Head and pronotum black, apical margin of pronotal front and the face ochraceously pilose; body beneath and legs fuscous; tegmina shining ochraceous, costal area from base to apex black; pronotum thickly finely punctate, anteriorly broad and rounded; lateral transverse processes short, moderately recurved, bicarinate, the first carination about middle, the other behind it; posterior process slightly raised above tegmina at base, tricarinate above, its apex acute and reaching outer angle of interior margin; tegmina with the black costal area punctate.

Length 11; breadth lat. pronot. process. 8 millim.

Hab. Trivandrum (*Coll. Dist.*).

Resembling *C. securis*, Buckt., by the somewhat similar colour of the tegmina, but to be recognized by the anteriorly broad and rounded pronotum, the bicarinate transverse pronotal processes, and the shorter posterior process.

2149. **Centrotypus flavescens**, sp. n.

Head, pronotum, body beneath and legs ochraceous, apices of the lateral pronotal processes pale castaneous; tegmina hyaline, the venation ochraceous, base and the whole of costal and subcostal areas from base to apex very pale castaneous; pronotum coarsely punctate; the lateral processes longly produced, moderately broad, apically recurved, centrally longitudinally carinate behind middle, apex oblique; posterior process becoming gradually narrower from base to apex, which passes the posterior angle of the inner margin of tegmina, laterally and centrally carinate, the central carination finely continued through pronotum; tegmina distinctly pilose on the darker opaque coloration at extreme base, and sometimes with a small, transverse, pale castaneous spot near end of clavus.

Length 10; breadth lat. pronot. process. 7½ to 8 millim.

Hab. "India" (*Brit. Mus.*).

Two specimens with no more precise locality than the above are contained in the National Collection. The peculiar pale coloration alone renders this species very distinct.

2150. **Centrotypus asmodeus**, sp. n.

Black, legs brownish-ochraceous; tegmina subhyaline, talc-like, oblique basal area, costal and radial areas more or less black, apical area and a spot near base bronzy-brown; pronotum thickly, somewhat finely punctate; lateral processes as seen from above marginally laminate, with a strong carination before posterior margin, apices narrowed and obliquely rounded, as viewed from the front narrow and obliquely directed upward; posterior process much narrowed beyond middle, tricarinate above, the central carination acutely raised, apex acute and very slightly passing the posterior angle of the inner margin; tegmina only punctate at extreme base, the oblique blackish basal area occupying about one-third of tegmen; legs normal.

Length 6; breadth lat. pronot. process. 4 millim.

Hab. Tenasserim; Myitta (*Doherty*).

2151. **Centrotypus ater**, *Buckt. Monogr. Membrac.* p. 238, t. liv, f. 5 (1903).

This species is not to be found in the Buckton Collection and I can therefore only reproduce the original description.

"Whole pronotum dull black. Suprahumerals stout, broad, acute and slightly recurved. Pronotum quite covers the abdomen and legs. Tegmina with thick brown nervures, with the costal areas brown and each with a dark triangular spot at the basal margin; the membrane otherwise is hyaline. The pronotum is arcuate in front, but allows the head and eyes to be visible above." (*Buckton.*)

"Size 14 × 11 mm."

Hab. Burma; Ruby Mines (*Doherty*).

Genus **EMPHUSIS**.

Emphusis, *Buckt. Monogr. Membrac.* p. 256 (1903).

Type, *E. obesus*, Fairm., from Java *.

Distribution. Oriental and Malayan Regions.

Buckton diagnoses this genus as follows:—"Pronotum without suprahumeral horns, tumid and crescentic in form, much punctured. Tegmina variegated with rich brown. Hind tarsi short."

The pronotal lateral processes are, however, well developed, but subhorizontally directed and apically recurved and in a continuous

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* *E. tumescens*, Buckt. = *E. obesus*, Fairm.

line with the crescentic anterior margin of the pronotum. This is the real and sufficient character which separates *Emphusis* from *Centrotypus*.

2152. **Emphusis malleus**, *Walk.* (Centrotus) *List Hom.* ii, p. 613 (1851).

Centrotypus obesus, *Atkins.* (part.) *J. A. S. B.* liv, p. 88 (1885); *Melich.* (part.) *Hom. Faun. Ceylon*, p. 116 (1903).

Pronotum indigo-black; head, body beneath and legs dull black, finely pilose; tegmina stramineous, extreme base, costal and radial areas black, apical area bronzy-brown; pronotum coarsely punctate, anteriorly broad and rounded; the lateral transverse

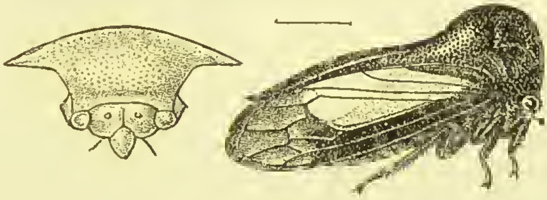

Fig. 29.—*Emphusis malleus.*

processes somewhat short, recurved, posteriorly bicarinate above, their apices broadly subacute; the posterior process somewhat broad and very strongly tricarinate above, its apex acute and very slightly passing the posterior angle of the inner margin, the central carination only continued on the basal area of the pronotum; tegmina with the black basal, costal and radial areas punctate; anterior legs not prominently incrassate.

Length $8\frac{1}{2}$; breadth lat. pronot. process. 6 millim.

Hab. Ceylon; Kalutara (*Green*).

Stål (Öfv. Vet.-Ak. Förh. 1869, p. 286), and Atkinson and Melichar (*supra*) treat this species as a synonym of *C. obesus*, Fairm.=*malleator*, Walk.=*malleolus*, Walk. The latter, however, is a distinct Javan species in which the pronotal angles are much more obtuse than in *C. malleus*, Walk.

Genus **PERIAMAN**, nov.

Type, *P. flavolineatus*, Buckt.

Distribution. Oriental and Malayan Regions.

Face strongly emarginate before clypeus; pronotum frontally roundly oblique; the lateral processes moderately broad and transverse, not prominently gibbous before posterior process which is robust, gradually narrowing to apex but not extending beyond the posterior angle of the inner margin of tegmina; tegmina broad, apical areas long and five in number; femora moderately thickened, tibiæ simple.

The *Centrotus limbatus*, Walk., from Borneo also finds a place in this genus.

2153. **Periaman flavolineatus**, *Buckt.* (Centrotus) *Monogr. Membrac.* p. 247 (1903).

Pronotum castaneous, lateral margins connected with a central line before face and angularly connected with same before middle of posterior process, ochraceous; face and body beneath castaneous but thickly palely pilose, apical half of abdomen castaneous; legs ochraceous; tegmina ochraceous, the veins castaneous, basal area

Fig. 30.—*Periaman flavolineatus.*

pale fuscous, apical area bronzy and talc-like; pronotum coarsely punctate, the central ochraceous line levigate, the others punctate; lateral transverse processes as seen from above moderately short and broad, directed upward, the anterior margins laminate, centrally strongly carinate, apices narrowed and obtusely acute, viewed from front narrow and obliquely directed upward; posterior process strong, tricarinate above, the central carination acute, narrowed beyond middle, extreme apex acute and slightly passing the posterior angle of the inner margin; tegmina punctate at base; legs normal.

Length 9; breadth lat. pronot. process. 4½ millim.

Hab. Mergui (*Ind. Mus.*). Tenasserim; Myitta (*Doherty*).

This species is allied to *Centrotus limbatus*, Walk., from Borneo.

2154. **Periaman pyropinus**, sp. n.

Pronotum castaneous-brown, base of frontal area and the face piceous; a narrow central carination, a frontal line to lateral processes and a posterior line to same continued to the margins

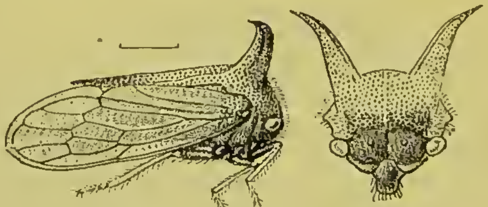

Fig. 31.—*Periaman pyropinus.*

of the posterior process ochraceous, posterior process with the basal area ochraceous, the apical area piceous; body beneath piceous; femora black, their apices and the whole of the tibiæ and

tarsi ochraceous, claws black; tegmina pale bronzy, semihyaline, darker, more opaque and punctate at basal area; pronotum coarsely punctate, palely pilose; lateral processes as seen from above long, somewhat slender, upwardly obliquely ascendant, apically strongly recurved, their apices acute; posterior process robust, passing posterior angle of inner margin of tegmina, strongly centrally and laterally carinate; tibiæ somewhat longly pilose.

Length 6; breadth lat. pronot. process. 3 millim.

Hab. Burma; Ruby Mines (*Doherty*).

Genus **OTINOTUS**.

Otinotus, *Buckt. Monogr. Membrac.* p. 232 (1903).

Type, *O. ammon*, Buckt.*

Distribution. Oriental Region.

Face gradually narrowed from base; pronotum with produced transverse lateral angles either directed horizontally or forwardly; posterior process slender, sinuate, scarcely or only a little separated from the scutellum, but as a rule not elevated above the tegmina, its central carination continued through the pronotum; tegmina with five apical areas; scutellum about as broad as long, its apex emarginate; legs simple.

A. *Posterior pronotal process not passing the posterior angle of inner margin of tegmina.*

2155. **Otinotus ammon**, *Buckt. Monogr. Membrac.* p. 233, t. lii, f. 6*a* (1903).

Body and legs black or dark piceous; front of pronotum, face, and lateral areas of sternum strongly ochraceously pilose; tegmina

Fig. 32.—*Otinotus ammon.*

pale bronzy, black at base; pronotum coarsely punctate; the lateral pronotal processes as seen from above narrow, transverse, slightly recurved, strongly centrally carinate, their apices subacute; posterior process slender, distinctly separated at base from scutellum, sinuate, narrowed at apex which about reaches the

* Buckton has several distinct genera included in the species of his genus *Otinotus*. *O. belus*, Buckt., is the first species enumerated, but the type is not in his collection, nor is the locality known. His generic description is inadequate I select *O. ammon* as type of *Otinotus* as here understood and described.

posterior angle of the inner margin of tegmina; tegmina punctate on the black basal area; posterior segmental margins to abdomen beneath dull ochraceous.

Length 7 to 8; breadth lat. pronot. process. 4 millim.

Hab. Nilgiri Hills (*Hampson*).

2156. **Otinotus pallipes,** sp. n.

Head and pronotum black; femora piceous-brown, tibiæ and tarsi pale ochraceous, extreme apices of tibiæ and tarsi black: tegmina very pale bronzy-ochraceous, base black, beyond which there is a narrow distinct transverse area which is paler in hue than the general bronzy tint; sternum and abdomen beneath black; pronotum coarsely punctate; lateral processes as seen from above strongly recurved, centrally carinate, gradually narrowing to apices which are subacute, as viewed in front narrower and more upwardly directed; posterior process sinuate, not extending beyond the posterior angle of the inner margin of the tegmina, strongly tricarinate, the central carination finely continued through the pronotum: tegmina punctate on the black basal area.

Length 6; breadth lat. pronot. process. 3 to 3½ millim.

Hab. Burma; Karen Hills (*Doherty*).

Allied to *O. ammon*, but with the lateral pronotal processes much more strongly recurved; colour of legs different, &c.

2157. **Otinotus rufescens,** sp. n.

Head, pronotum and legs testaceous-red; sternum and abdomen beneath piceous; tegmina very pale bronzy-ochraceous, the base narrowly piceous; pronotum obscurely punctate, finely pilose; lateral processes as seen from above almost horizontally produced. narrowing to the apices which are subacute and at their extremities very narrowly piceous, centrally carinate, as viewed in front appearing much narrower and more obliquely directed upward; posterior process closely impinging on tegmina, narrowing to apex which is piceous at extremity, and not passing the posterior angle of the inner margin of tegmina, strongly centrally carinate, the carination finely continued through pronotum; legs pilose.

Length 6; breadth lat. pronot. process. 4 to 4½ millim.

Hab. Tenasserim; Myitta (*Doherty*).

B. *Posterior pronotal process passing the posterior angle of inner margin of tegmina.*

2158. **Otinotus oneratus,** *Walk.* (Centrotus) *Ins. Saund., Hom.* p. 78 (1858); *Stål* (Centrotypus), *Öfv. Vet.-Ak. Förh.* 1869, p. 286; *Atkins. J. A. S. B.* lv, p. 196 (1886).
Oxyrhachis lignicola, *Buckt. Monogr. Membrac.* p. 224, t. xlix, f. 6 *a, b* (1903).

Castaneous or piceous-brown; lateral areas of scutellum and

sternum and apical margins of face cretaceously sericeous ; tegmina pale semi-hyaline, talc-like, the base ochraceously opaque; lateral pronotal processes as seen from above somewhat slender, obliquely upturned, apically a little recurved, centrally carinate, gradually

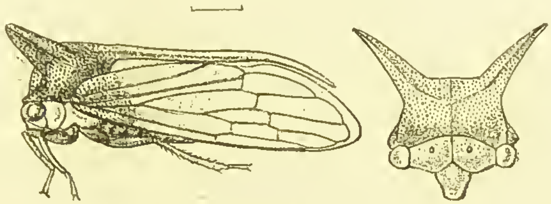

Fig. 33.—*Otinotus oneratus.*

narrowing from base to apex; posterior process long, slender, scarcely separated from scutellum and then sinuate, impinging on tegmina, its apex passing the posterior angle of the inner margin of tegmina; tegmina punctate on the basal opaque area.

Length 6 to 7; breadth lat. pronot. process. 3 to 3½ millim.

Hab. Calcutta; Bombay and Poona (*Coll. Dist.*); Catrapura (*Stebbing*). Ranchi (*Irvine*); S. India; Ramiseram. Ceylon; Peradeniya, Elephant Pass, Jaffna (*Green*).

2159. **Otinotus pallescens**, sp. n.

Body and legs brownish-ochraceous, finely pilose: lateral areas of the scutellum paler and more dull ochraceous; tegmina pale tawny, semi-opaque, the veins fuscous-brown; pronotal lateral processes as seen from above rather long, somewhat strongly ascending, apically recurved, centrally carinate, their apices only obtusely acute, as viewed in front appearing narrower, with their apices more acute; posterior process long, scarcely raised above scutellum, strongly carinate above, the central carination continued through the pronotum, its apex piceous and considerably passing the posterior angle of the inner margin of tegmina, its whole length strongly sinuate and impinging on the tegmina.

Length 6; breadth lat. pronot. process. 3½ millim.

Hab. Bombay (*Dixon*). Mainpuri, U. P. I. (*Walton*). Bangalore (*Cameron, Indian Mus.*).

A species to be recognized by its general pale tawny colour, the pale tegmina with darkly coloured veins, the obtuse apices to the lateral pronotal processes, &c.

2160. **Otinotus elongatus**, sp. n.

Body and legs piceous-brown; lateral areas of the sternum dull cretaceously sericeous; tegmina semi-hyaline, narrowly dull piceously opaque at base, narrowly elongate, somewhat compressed; pronotum very finely pilose; the lateral processes as seen from above moderately broad, upwardly directed and apically strongly recurved, centrally carinate, apices subacute, as viewed

in front these processes are much narrower in appearance; posterior process long, sinuate, impinging on tegmina, scarcely elevated above scutellum, its apex considerably passing posterior angle of inner margin of tegmina, tricarinate, the central carination continued through pronotum.

Length 5 to 6; breadth lat. pronot. process. $3\frac{1}{2}$ millim.

Hab. Calcutta (*Coll. Dist.*).

This species is distinct by its elongate and compressed form and its pale semi-hyaline tegmina.

Genus **POGON**.

Pogon, *Buckt. Monogr. Membrac.* p. 248 (1903).

Type, *P. incurvatum*, Buckt.

Distribution. Ceylon.

This genus, judging from the unique typical specimen now before me, has been founded on a mutilated specimen. Buckton writes: "may be distinguished by its almost obsolete posterior horn and by the curved neuration of the tegmina." The first character does not exist and was described from the mutilated type now in my collection. The posterior process is slender, closely impinging on the tegmina and extends to or beyond the posterior angle of the inner tegminal margin; the veins to the apical areas of the tegmina are strongly curved inwardly, and this character will separate *Pogon* from *Otinotus* to which it has a strong superficial resemblance.

2161. **Pogon incurvatum**, *Buckt. Monogr. Membrac.* p. 248, t. lviii f. 6, *a, b, c,* (1903).

Buckton's mutilated type is here figured and I add his original description:—"Suprahumerals stout and thorn-like, recurved and divergent. Scutellum exposed and conspicuous" (this is only consequent on the mutilated posterior pronotal process). "Posterior horn very short, not so long as the scutellum and like it cleft at

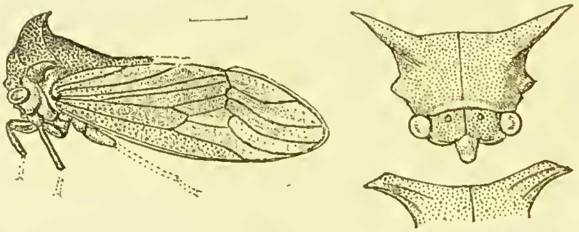

Fig. 34.—*Pogon incurvatum.*

the apex" (description of a mutilation). "Abdomen broad, pale umber-brown like the rest of the insect. Tegmina pointed, much paler brown in colour, with darker fuscous waved markings, which are partly followed by the curved dark neuration. The fine apical

areas are bounded by these curved nervures and those forming the two discoidal cellules. The posterior horn is less than half the length of the abdomen" (this last character represents a mutilation).

The lateral pronotal processes as seen from above are bicarinate, with their apices obliquely truncate.

"Expanse 12; size 6 × 4 millim."

Hab. Ceylon (*Green, Brit. Mus.*); Pattipola (*Green, Coll. Dist.*).

2162. **Pogon atricoxis**, *Kirby* (Centrotus), *J. Linn. Soc., Zool.* xxiv, p. 164 (1891); *Melich.* (part.) (Centruchus) *Hom. Faun. Ceylon*, p. 113 (1903).

Head and pronotum black, very shortly greyishly pilose; sternum and abdomen beneath cretaceously sericeous; legs castaneous, finely greyishly pilose; tegmina dark castaneous, paler towards apex, the veins and costal and basal areas very finely and more palely pilose; pronotum finely obscurely punctate; lateral processes as seen from above transverse, apically recurved, bicarinate,

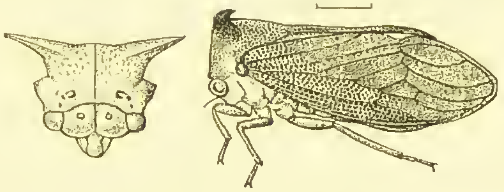

Fig. 35.—*Pogon atricoxis.*

their apices subacute, as viewed from in front much narrower and their apices more acute; posterior process slender, closely impinging on the tegmina, finely laterally and centrally carinate, its apex passing the posterior angle of the inner margin of the tegmina, which have a very small paler spot near posterior angle of inner margin.

Length 6; breadth lat. pronot. process. $3\frac{1}{2}$ millim.

Hab. Ceylon; Kandy, Nawalapitya (*Green*).

2163. **Pogon cupreum**, *Kirby* (Centrotus), *J. Linn. Soc., Zool.* xxiv, p. 168 (1891); *Melich.* (Centruchus) *Hom. Faun. Ceylon*, p. 113 (1903); *Buckt.* (Sextius) *Monogr. Membrac.* p. 228, t. 1, f. 8 *a* (1903).

Head and pronotum purplish-brown, very finely, shortly and more palely pilose; sternum and abdomen beneath more or less cretaceously sericeous; legs pale testaceous; tegmina purplish-brown, becoming more ochraceous on apical area, the veins and costal and basal areas very finely and more palely pilose; pronotum finely punctate; lateral processes as seen from above broadly subtriangular and apically recurved, bicarinate, apices subacute, as viewed from the front much narrower and the apices more acute;

posterior processes slender, closely impinging on tegmina, finely laterally and centrally carinate, the central carination continued through pronotum, apex passing posterior angle of inner margin of tegmina; legs finely pilose.

Length 5½; breadth lat. pronot. process. 3 millim.

Hab. Ceylon; Badulla, Maskeliya, Kandy, Pundaluoya (*Green*).

To be distinguished from the preceding species *P. atricoxis* by the slightly shorter and more subtriangular pronotal lateral processes.

2164. **Pogon auriculatum,** *Stål* (Leptobelus), *Öfv. Vet.-Ak. Förh.* 1869, p. 285; *Melich. Hom. Faun. Ceylon,* p. 114 (1903).

"Ferruginous, punctulate, moderately silaceo-sericeous, thorax above the lateral angles shortly cornuted, the processes short and

Fig. 36.—*Pogon auriculatum.*

compressed; tegmina palely ferruginous-hyaline, base of clavus, the whole of costal area, and radial area before middle and outwardly behind middle ferruginous, opaque and punctate." (*Stål.*)

This species is to be distinguished from the other examples of the genus here previously enumerated, by the much shorter lateral pronotal processes.

Length ♀ 5½ millim.

Hab. Ceylon (*Stockholm Museum*).

I have not received this species myself from Ceylon and am indebted to Dr. Yngve Sjöstedt of Stockholm for enabling me to figure it.

2165. **Pogon ? ferrugineum,** *Melich.* (Centruchus) *Hom. Faun. Ceylon,* p. 114 (1903).

"Whole upper surface and underside rusty-yellow; face and pronotum very thickly and finely punctured, bare, the lateral projections short, prismatic, directed obliquely upward and outward, above with a very fine short keel, the hinder projection narrow, impinging on the scutellum, towards the back pointed like a thorn and weakly wave-like, curved, the tip slightly extending beyond the tip of the clavus and slightly arched downward, ridged in middle and on sides, the middle keel on pronotum reduced and very prominent; scutellum longish, triangular, punctured, not tomentose; tegmina hyaline, rusty yellow, transversely wrinkled

at the clavus, on the base and along costa thickly and finely punctured and traversed by rusty-yellow veins; wings hyaline, with rusty-yellow veins; pectus rusty-yellow; anterior coxæ and clypeus brownish; abdomen pale yellow beneath, anterior coxæ near clypeus brownish; abdomen below pale yellow and above rusty-yellow; borders of abdominal segments reddish.

"This species is allied to *atricoxis*, Kirby, but much more slender, the lateral process short, and especially distinguished by the rusty-yellow colour of the whole body." (*Melichar.*)

"Length ♂ & ♀ 5 millim."

Hab. Ceylon; Peradeniya, Henaratgoda (*fide Melichar*).

I have not seen this species.

Division *CENTROTUSARIA.*

The fundamental character by which the *Centrotusaria* are to be separated from the previous divisions is found in the wings, which have only three apical areas. The presence of pronotal lateral processes divide it from the following division *Gargararia.*

Synopsis of Genera.

A. Posterior pronotal process distinctly separate from scutellum, moderately ampliate beneath and impinging on tegmina .... CENTROTUS, p. 45.

B. Posterior pronotal process rising obliquely direct near base of pronotum and then rectangularly directed to near posterior angle of inner tegminal margin .... ANCHON, p. 49.

C. Posterior pronotal process moderately short and impinging on scutellum and tegmina .. TRICENTRUS, p. 53.

Genus **CENTROTUS.**

Centrotus, *Fabr. Syst. Rhyng.* p. 16 (1803); *Stål, Hem. Afr.* iv, p. 88 (1866); *Melich. Hom. Faun. Ceylon*, p. 109 (1903).

Type, *C. cornutus*, Linn., a Palæarctic species.

Distribution. Apparently found throughout the Eastern hemisphere.

In this genus the posterior pronotal process is distinctly separate and somewhat remote from the scutellum, then moderately ampliated beneath, the apical area slender and impinging on the tegmina; anterior lateral processes of variable shape and size, generally, as in the species here included, longly produced. Stål, in his synopsis (*supra*), gives the lateral angles as acuminate, but this cannot be maintained for all the species which I have here included in *Centrotus.* The structure and position of the posterior pronotal process is, however, apparently a constant character.

A. *Anterior lateral pronotal processes obliquely directed upward.*

2166. **Centrotus indicatus**, *Melich. Hom. Faun. Ceylon*, p. 111 (1903).

Piceous-brown, thickly ochraceously pilose; lateral areas of the sternum and a spot on each side of base of scutellum greyish-ochraceous; tegmina with a small pale spot near posterior angle of inner margin; lateral pronotal processes as seen from above

Fig. 37.—*Centrotus indicatus.*

somewhat broad, obliquely upturned, bicarinate, their apices obliquely truncate, as viewed from the front very much narrower, with their apices subacute; the posterior process separate from the scutellum, sinuate, placed close to the margins of the tegmina, the central carination very pronounced, the apex just passing the posterior angle of the inner margin of the tegmina; tegmina punctate on basal area; legs pilose.

Length 6 to 7; breadth lat. pronot. process. 4 millim.

Hab. Ceylon; Kandy, Badulla, Jaffna (*Green*); Ratnapura District, Moruwale, Gamaduwa, Patipolla, Uva (*Colombo Mus.*); Weligama (*Mus. Hongrois*).

Dr. Horváth of Budapest kindly sent me a cotype of this species for comparison.

2167. **Centrotus granulatus**, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 166 (1891); *Melich. Hom. Faun. Ceylon*, p. 110 (1903); *Buckt.* (Daunus) *Monogr. Membrac.* p. 226, t. 1, f. 2 *a* (1903).

Piceous, greyishly-pilose; an ochraceous spot near each lateral angle of the scutellum; lateral areas of the sternum testaceously sericeous; pronotum granulose; the lateral processes as seen from above long, moderately ascendant, obliquely directed forward, bicarinate, apices broad and truncate, as viewed in front much narrower, more obliquely ascendant and the apices apparently more acute; posterior pronotal process about reaching the posterior angle of the inner margin of the tegmina, robust, centrally and laterally carinate, well separated from the scutellum at base, after which it is ampliated beneath and impinges on the tegmina, thence gradually narrowed to apex; tegmina with the veins pilose; body beneath and legs thickly pilose.

Length 8; breadth lat. pronot. process. $5\frac{1}{2}$ to 6 millim.

Hab. Ceylon; Kandy, Pundaluoya (*Green*); Nalanda, Patipolla (*fide Melichar*).

2168. **Centrotus bioculatus**, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 166 (1891); *Melich. Hom. Faun. Ceylon*, p. 111 (1903).

Head and pronotum purplish-black; two spots in centre of front and a spot on each side of base of scutellum greyish-sericeous; lateral areas of sternum and abdomen beneath more or less very

Fig. 38.—*Centrotus bioculatus.*

pale ochraceously sericeous; legs purplish-brown, palely pilose; tegmina castaneous-brown, the inner area hyaline, which is darker on basal half owing to the reflection of the abdomen beneath; pronotum coarsely granulose; the lateral processes as seen from above long, broad, obliquely ascendant, bicarinate, the apices truncate, as viewed in front narrower, with the apices apparently more acute; posterior process at base only moderately raised above the scutellum, centrally and laterally carinate, the central carination continued through pronotum, its apex slightly passing the posterior angle of the inner margin of the tegmina, moderately ampliated beneath beyond basal area and impinging on the tegmina.

Length 9; breadth lat. pronot. process. 6 millim.

Hab. Ceylon; Maskeliya, Pundaluoya (*Green*); Haputale, Newera Ellya (*fide Melichar*).

2169. **Centrotus ramosus**, sp. n.

Head and pronotum black; tegmina piceous; a small spot at each basal angle of scutellum and the lateral areas of the sternum

Fig. 39.—*Centrotus ramosus.*

ochraceously sericeous; legs piceous; pronotum coarsely granulose, lateral process as seen from above very long and obliquely

ascendant, the apical areas considerably widened and slightly recurved, tricarinate, the carinations transversely connected before apex which is truncate, as viewed in front narrower but the apex broad with the edges recurved; posterior process well separated from the scutellum, beyond which it is ampliated beneath and impinges on the tegmina, tricarinate, the central carination finely continued on pronotum, the apex passing the posterior angle of the inner margin of tegmina; tegmina with a small pale spot near apex of claval area and narrowly black and punctate at base.

Length 8; breadth lat. pronot. process. 7 millim.

Hab. Ceylon; Udagama (*Coll. Dist.*).

2170. **Centrotus angustulus,** *Melich. Hom. Faun. Ceylon,* p. 112 (1903).

"Small and slender, similar to *cupreus*, but nearer *granulatus* in the form and position of the lateral pronotal projections; whole body rusty-brown, face and pronotum thickly punctate and sparingly greyishly hirsute; in middle of pronotum a longitudinal keel produced on posterior process; lateral processes directed more upward and forward, at base rather broad, tip slightly narrowed, at end almost straightly truncated, front corners rounded off, hinder forming a sharp corner, provided above with a keel which runs into the sharp corner, beneath with two truncated longitudinal keels, the front corner of lateral processes somewhat sharpened; posterior process narrow, prismatic, distinctly wave-like, curved, at base of scutellum somewhat standing away, directed downward; tegmina rusty-brown, punctured at base and on costal margin; wings hyaline, strongly shining; scutellum longish, triangular, not tomentose; pectus yellowish-white, thickly tomentose; abdomen rusty-brown, sparingly haired with greyish-white on the belly; legs rusty-yellow, claws dark." (*Melichar.*)

"Length ♀ 5 millim."

Hab. Ceylon; Pundaluoya.

I have not seen this species.

B. *Anterior lateral pronotal processes neither oblique nor ascendant.*

2171. **Centrotus transversus,** sp. n.

Head, pronotum, body beneath and legs black; a spot at each basal angle of scutellum and the anterior lateral areas of the sternum ochraceously sericeous; legs ochraceous; tegmina dark castaneous-brown; pronotum coarsely granulose; the lateral processes as seen from above broad, horizontally extended, bicarinate, the anterior carination more or less imperfect, the apices broadly truncate, their anterior angle rounded, their posterior angle obtusely acute, as viewed in front apparently very much narrower; posterior process robust, tricarinate, the central carination continued through pronotum, distinctly separated from scutellum, where and for a short distance beyond which it is ampliated beneath and then gradually narrowed to apex, which is acute and passes the posterior

angle of the inner margin of tegmina; tegmina a little darker at base and on costal area, where they are obscurely punctate; legs sparingly ochraceously pilose.

Length 10; breadth lat. pronot. process. 8 millim.

Hab. Assam; Margherita (*Coll. Dist.*).

Genus ANCHON.

Anchon, *Buckt. Monogr. Membrac.* p. 214 (1903).
Platybelus, *Stål* (part.), *aa, Hem. Afr.* iv, p. 96 (1866).

Type, *A. nodicornis*, Fairm., a South-African species.

Distribution. Ethiopian and Oriental Regions.

Front well bent outwardly, the apex not prominent; pronotum above lateral angles produced into strong processes directed obliquely upward and at apices strongly recurved, posterior process rising obliquely direct near base of pronotum and then rectangularly directed to about or beyond the posterior angle of the inner margin of the tegmina; scutellum about as broad as long; tegmina with five apical areas (as computed by Stål)*; wings with three apical areas; tibiæ simple.

According to Buckton: "This genus may be chiefly distinguished by the almost rectangular attachment of the posterior border of the pronotum to the short upright process springing from the dorsum. This is carried horizontally and quite free from the scutellum. The suprahumerals are rather varied in form, some being clavate and others being more arcuate in shape."

The genus *Anchon*, in fact, really represents Stål's section *aa* of his genus *Platybelus* (Hem. Afr. iv, p. 96).

2172. **Anchon pilosum**, *Walk.* (Centrotus) *List Hom.* ii, p. 606 (1851); *Stål* (Xiphopœus), *Öfv. Vet.-Ak. Förh.* 1869, p. 285; *Atkins. J. A. S. B.* liv, p. 83 (1885); *Melich.* (part.) (Platybelus) *Hom. Faun. Ceylon*, p. 119 (1903).

Head and pronotum brownish-testaceous, strongly greyishly

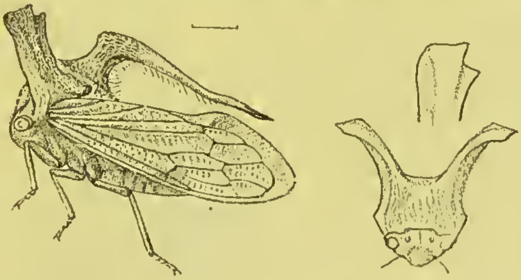

Fig. 40.—*Anchon pilosum.*

pilose, posterior pronotal process from near base pale ochraceous with the apex black; body beneath thickly greyishly pilose; legs

* This is an uncertain character owing to the different methods of computation used by describers.

pale testaceous, greyishly pilose; tegmina greyish, semi-opaque, talc-like, somewhat prismatic, the veins very pale brownish, a brown marginal spot near apex of inner margin and a piceous stigmatical spot; lateral pronotal processes as seen from above broad, directed obliquely upward, their apices a little widened, the apical margin subtruncate with an obliquely raised angulation beyond middle, behind which it is obliquely concavely excavate; posterior process obliquely erect at base and then obliquely and sinuately directed backward, becoming gradually more slender to apex, which is acute and extends to a little beyond the posterior angle of the inner margin of the tegmina, strongly centrally ridged above, the ridge extending through the pronotum but very faintly seen in front; tegmina wrinkled, the base darker and more opaque.

Length 5; breadth lat. pronot. process. 3½ millim.

Hab. "N. India" (*Brit. Museum*). Bombay (*Dixon*). Ceylon; Peradeniya (*Green*).

The unique type in the British Museum is here figured.

2173. **Anchon ulniforme**, *Buckt. Monogr. Membrac.* p. 216, t. xlix, f. 1, *a* (1903).

Umber-brown; pronotum with a cretaceous sericeous line on each side, commencing behind each lateral process and continued at base of scutellum (in Buckton's type, here figured, this line is

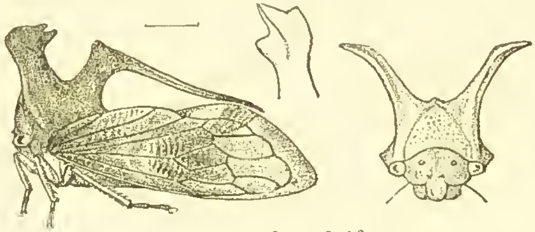

Fig. 41.—*Anchon ulniforme.*

nearly obliterated); lateral areas of the sternum cretaceously sericeous; tegmina umber-brown, the apical area more or less hyaline with the veins brown, a prominent brown spot at posterior angle of inner margin; legs and posterior pronotal process beyond base pale brownish-ochraceous, apex of the latter and femora (excluding apices) piceous; pronotum thickly pilose; lateral pronotal processes as seen from above broad, strongly ridged behind middle, their apices ampliate and truncate, strongly angulate posteriorly, after which they are concave and lobate on posterior margins, viewed from the front they are narrow and recurved, the apices appearing subacute; the posterior process at basal elevation is inwardly angulate and then obliquely and somewhat sinuately continued to just beyond posterior angle of inner margin of tegmina.

Length 6; breadth lat. pronot. process. 3½ millim.

Hab. Tenasserim; Myitta (*Doherty*).

2174. **Anchon echinatum**, sp. n.

Umber-brown; pronotum thickly, longly, greyishly pilose, with a cretaceous sericeous line on each side, commencing behind each lateral process and continued at base of scutellum; legs and posterior pronotal process beyond base brownish-ochraceous, the apex of the latter and femora (excluding apices) piceous; tegmina umber-brown, which becomes much paler at base and exhibits a

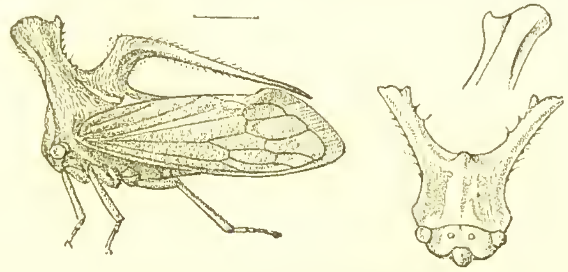

Fig. 42.—*Anchon echinatum.*

prominent brown spot at posterior angle of inner margin; pronotal lateral processes as seen above broad and flattened, their margins finely spinous, their apices ampliate, convexly truncate, concavely sinuate posteriorly, the posterior angle broadly subacute; the posterior process with fine spinules, a little inwardly prominent at basal elevation and then obliquely and slightly sinuately continued to just beyond posterior angle of inner margin of tegmina.

Length 6; breadth lat. pronot. process. $3\frac{1}{2}$ millim.

Hab. Tenasserim: Myitta (*Doherty*).

Allied to *A. ulniforme*, but differing by the shape of the pronotal lateral processes and by the spinous condition of all the pronotal processes.

2175. **Anchon rectangulatum**, *Kirby* (Centrotus), *J. Linn. Soc., Zool.* xxiv, p. 166 (1891).

Platybelus pilosus (part.), *Melich. Hom. Faun. Ceylon*, p. 119 (1903).

Pronotum fuscous-brown, thickly, longly, greyishly pilose, on

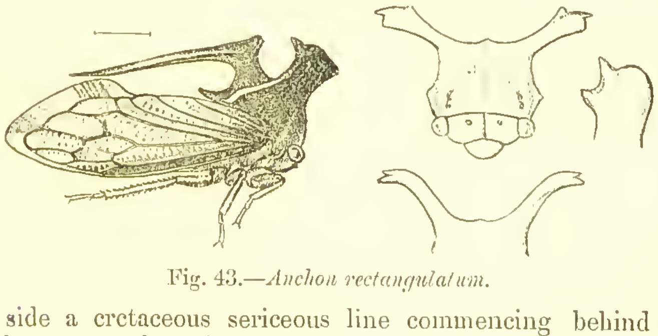

Fig. 43.—*Anchon rectangulatum.*

each side a cretaceous sericeous line commencing behind each lateral process and continued on base of scutellum; legs ochraceous-

brown, femora (excluding apices) piceous; tegmina greyish, opaque, base dark fuscous, a little paler on apical area where there are two brown marginal spots, one at apex, the other near posterior angle of inner margin; lateral pronotal processes as seen from above broad, flattened, strongly ampliated at apices, broadly convexly rounded anteriorly, strongly angularly produced behind middle, then concavely sinuate and again more obtusely angulate, as viewed from the front much narrower, more recurved, their apices appearing biangulate; posterior process almost unicolorous, somewhat prominently incurved at basal elevation and obliquely and somewhat sinuately continued to beyond posterior angle of inner margin of tegmina.

Length 5; breadth lat. pronot. process. $3\frac{1}{2}$ millim.

Hab. Ceylon; Anuradhapura, Pundaluoya (*Green*).

The species figured by Buckton as *rectangulatum* (Monogr. Membrac. p. 215, t. xlviii, f. 3, *a*, *b*) is very doubtfully that species. Melichar states that it is identical with *pilosum*, Walk., which the figures of the two species (types) here given will correct.

2176. **Anchon dirce**, *Buckt. Monogr. Membrac.* p. 216, t. xlix, f. 2 (1903).

This species is allied to *A. rectangulatum* and differs principally by the greater space between the lateral and posterior pronotal

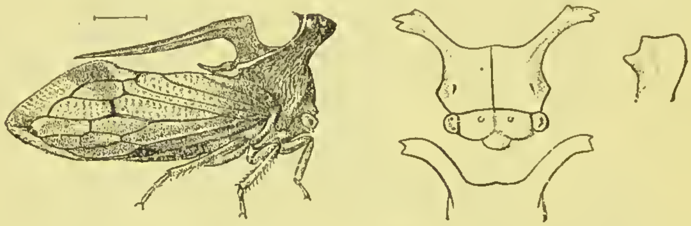

Fig. 44.—*Anchon dirce.*

processes, the less convex anterior apical margins, and the less angulated medial apical prolongation of the lateral pronotal processes.

Length 6; breadth lat. pronot. process. 4 millim.

Hab. Ceylon (*Thwaites*, *Hope Coll.*); Kandy (*Green*).

The type in the Hope Museum, Oxford, is here figured.

2177. **Anchon brevis**, sp. n.

Pronotum and scutellum black, moderately greyish pilose, a cretaceous sericeous line on each side of pronotum commencing behind each lateral process and continued along base of scutellum; legs ochraceous, femora (excluding apices) piceous; tegmina talc-like, subhyaline, the veins ochraceous or brownish-ochraceous, the

base piceous and with a prominent brown spot at apex and near posterior angle of inner margin; pronotal lateral processes as seen

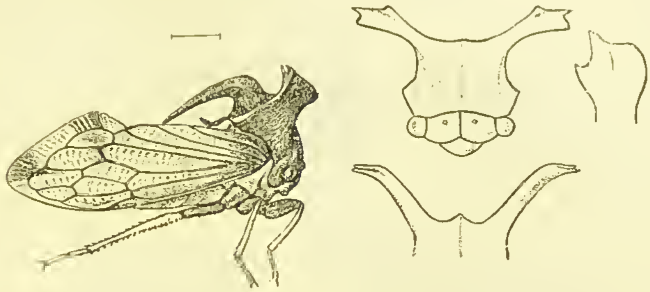

Fig. 45.—*Anchon brevis.*

from above broad, somewhat flat, their apices much as in *A. rectangulatum*; posterior processes very short, curved, not extending beyond apex of clavus.

Length 5; breadth lat. pronot. process. 3½ millim.

Hab. Ceylon; Anuradhapura (*Green*).

The short posterior pronotal process sufficiently distinguishes this species.

Genus TRICENTRUS.

Tricentrus, *Stål, Hem. Afr.* iv, p. 89 (1866); *id. Öfv. Vet.-Ak. Förh.* 1869, p. 283; *id. tom. cit.* 1870, p. 728.
Taloipa, *Buckt. Trans. Linn. Soc. Lond.* ix, p. 334 (1905).

Type, *T. convergens*, Walk., from the Philippines.

Distribution. Oriental, Malayan, and Australasian Regions.

Body ovate or oblong-ovate; pronotum with posterior process longer than broad, the lateral angles prominent or cornuted, the posterior process moderately short, not remote from scutellum; posterior trochanters inwardly armed with spinules; tegmina somewhat short and broad, apical areas five; wings with three apical areas; scutellum about equally broad as long.

Stål relied largely on the inwardly spinnlose posterior trochanters, which is a good but somewhat difficult or obscure character to always distinguish.

A. *Head and pronotum black.*

2178. **Tricentrus gibbosulus**, *Walk.* (Centrotus) *Ins. Saund., Hom.* p. 80 (1858); *Atkins. J. A. S. B.* lv, p. 198 (1886).

Head, pronotum, body beneath and legs piceous, somewhat thickly and very finely pilose; tibiæ, tarsi and apices of femora testaceous; tegmina pale bronzy-brown, base piceous-black; lateral pronotal processes as seen from above short, broad, slightly upturned, the anterior margin rounded, the posterior margin obliquely straight, apex obtusely acute and slightly recurved, rather indistinctly carinate behind middle, as viewed in front

narrow, slender, with the apices more acute; posterior process short, robust, raised, centrally and laterally carinate, the central carination obscurely continued on pronotum, scarcely elevated

Fig. 46.—*Tricentrus gibbosulus.*

above scutellum, the apex not quite reaching posterior angle of inner margin of tegmina.

Length $4\frac{1}{2}$ to 5; breadth lat. pronot. process. $2\frac{1}{2}$ to 3 millim.

Hab. Assam; Margherita. Calcutta. Ranchi (*Irvine*).

2179. **Tricentrus congestus,** *Walk.* (Centrotus) *Ins. Saund., Hom.* p. 79 (1858); *Atkins.* (Centrotus?) *J. A. S. B.* lv, p. 197 (1886).

Head, pronotum, body beneath and legs piceous, thickly ochraceously pilose; apices of the femora and the whole of the tibiæ and tarsi more or less testaceous; tegmina pale bronzy-brown,

Fig. 47.—*Tricentrus congestus.*

the base a little darker and more opaque; lateral pronotal processes as seen from above somewhat long, only moderately broad, obliquely ascendant, obscurely carinate behind middle, their apices subobliquely truncate, as viewed in front much narrower, their apices subacute; posterior process short, robust, raised, centrally and laterally carinate, the central carination obscurely continued through pronotum.

Length $4\frac{1}{2}$ to 5; breadth lat. pronot. process. 3 millim.

Hab. Pussumbing, Darjeeling (*Mann, Ind. Mus.*). Calcutta. Tenasserim; Myitta (*Doherty*).

As shown in the above figure, there is a tendency in this species to exhibit transverse veins towards the apical area: this character, however, is neither constant nor uniform and cannot be considered of generic signification.

2180. **Tricentrus projectus**, sp. n.

Castaneous-brown, pronotum and face more or less ochraceously pilose; a small pale sericeous spot at each basal angle of scutellum; femora black, their apices and the whole of the tibiæ castaneous; tarsi ochraceous, the claws black; body beneath black; pronotum punctate, its disk and front thickly ochraceously pilose; lateral processes as seen from above straightly obliquely porrect, very strongly centrally ridged and on each lateral area sharply obliquely depressed, their apices subacute; posterior process somewhat short,

Fig. 48.—*Tricentrus projectus.*

robust, strongly centrally raised and carinate, the central carination obscurely continued through pronotum, closely impinging on tegmina, its apex about reaching posterior angle of inner margin of tegmina; tegmina strongly wrinkled, base piceous and punctate, apical margins a little paler and more ochraceous-brown.

Length $4\frac{1}{2}$; breadth lat. pronot. process. 3 millim.

Hab. Tenasserim; Myitta (*Doherty*).

2181. **Tricentrus bicolor**, sp. n.

Head, pronotum, body beneath and legs black, finely ochraceously pilose, posterior tarsi ochraceous; lateral areas of sternum cretaceously sericeous; tegmina pale bronzy-ochraceous, base black, at outer margin of which there is a distinct paler transverse fascia; pronotum thickly coarsely punctate; lateral processes as seen from above rather strongly recurved, centrally carinate, anterior margin rounded, posterior margin almost obliquely straight, apex obtusely subacute, as viewed in front narrower and more obliquely upcurved; posterior process short, robust, raised, centrally and laterally carinate, the central carination finely continued through pronotum, apex not quite reaching the posterior angle of the inner margin of tegmina; tegmina punctate on the black basal area.

Length 5; breadth lat. pronot. process. 3 millim.

Hab. Bombay (*Dixon*).

2182. **Tricentrus subangulatus**, sp. n.

Head, pronotum, body beneath and legs black, somewhat longly pilose; tegmina with a pale bronzy tint, the veins piceous, base

black, on outer margin of which is a distinct paler transverse fascia; pronotum thickly punctate; lateral processes as seen from above very short, broad, recurved, anterior margin rounded, posterior margin almost straight, apex roundly subtruncate; posterior process short, robust, raised, central and lateral carinations fine, the central carination continued through pronotum, apex projecting, not impinging on tegmina and not reaching posterior angle of inner margin of tegmina; tegmina punctate on black basal area.

Length 5½; breadth lat. pronot. process. 3 millim.

Hab. Nilgiri Hills (*Hampson*).

A species to be recognized by the short pronotal lateral processes, the projecting apex of the posterior process, and the pale darkly-veined tegmina.

2183. **Tricentrus albomaculatus**, sp. n.

Head and pronotum black, finely pilose; sternum black, abdomen beneath and legs piceous; tegmina dull bronzy, subhyaline, base black, followed by a large creamy-white spot; pronotum very finely punctate, the punctures almost hidden by the pilose surface; lateral pronotal processes as seen from above short, broad, apically recurved, apices subacute, anterior margins rounded, longitudinally carinate behind middle, as viewed in front much more slender and obliquely upcurved; posterior process robust, gradually narrowing to apex, which reaches the posterior angle of inner margin of tegmina and is acute and a little upcurved; tegmina with the black basal area coarsely punctate.

Length 4; breadth lat. pronot. process. 2½ millim.

Hab. Bombay (*Dixon*). Tenasserim; Myitta (*Doherty*).

2184. **Tricentrus cuneatus**, sp. n.

Black; body beneath and legs pilose; tegmina subhyaline, talc-like, the veins fuscous, apical area bronzy-brown, before which the

Fig. 49.—*Tricentrus cuneatus.*

colour is pale, giving the appearance of a paler transverse fascia, base black; pronotum thickly, somewhat finely punctate; the transverse lateral processes as seen from above short, broad, slightly directed upward, non-carinate, their apices broadly obliquely truncate, their margins moderately ridged, viewed from the front

narrow and obliquely directed upward, triangularly subacute; the posterior process very broad and robust, strongly centrally carinate, the lateral carinations more prominent on apical area, its extreme apex obtusely acute and reaching the posterior angle of the inner margin; tegmina coarsely punctate on the black basal area; legs normal.

Length 7; breadth lat. pronot. process. 4½ millim.

Hab. Sookna, 533 feet.

This species is to be structurally recognized by the robust pronotal posterior process and the non-carinate transverse processes.

B. *Head and pronotum testaceous or ochraceous.*

2185. **Tricentrus selenus**, *Buckt.* (Centrotus) *Monogr. Membrac.* p. 247, t. lx, f. 6 (1903).

Head and pronotum dark ochraceous, pilose; extreme apices of transverse pronotal processes and about apical third of posterior process black; body beneath fuscous, palely pilose; legs ochraceous, bases of femora narrowly fuscous; tegmina pale ochraceous, subhyaline; pronotum palely pilose; the lateral transverse processes as seen from above moderately broad, anteriorly a little ampliate and rounded, apices subacute, broadly carinate near middle; posterior process robust, tricarinate, sides oblique, apex about reaching the posterior angle of inner margin.

Length 5; breadth lat. pronot. process. 3½ millim.

Hab. Tenasserim: Myitta (*Doherty*).

A small species, to be recognized by its pilose character, the black apical area to the posterior pronotal process, and by its general pale coloration.

2186. **Tricentrus assamensis**, sp. n.

Head, pronotum and legs pale testaceous; apices of lateral and posterior pronotal processes black; body beneath piceous, palely pilose; tegmina subhyaline, talc-like, venation brownish-ochraceous, base narrowly brownish-ochraceous, opaque; pronotum thickly punctate, lateral pronotal processes as seen from above somewhat short and narrow, strong, medially carinate, apices subacute and slightly recurved, as viewed in front narrower, more obliquely upwardly directed and the apices more acute; posterior process somewhat short, somewhat raised, centrally and laterally carinate, the central carination finely continued through pronotum, the apex not quite reaching the posterior angle of the inner margin of the tegmina; tegmina with the veins a little granulose, the basal opaque area punctate.

Length 6; breadth lat. pronot. process. 3½ millim.

Hab. Assam; Margherita.

Allied to the preceding species, *T. selenus*, Buckt., but with the lateral pronotal processes very much more slender and their apices more broadly black.

2187. **Tricentrus decoratus**, sp. n.

Face and pronotum piceous, very thickly ferruginously pilose; posterior pronotal process with about basal half ochraceous and its apical area black; body beneath piceous, palely pilose; legs

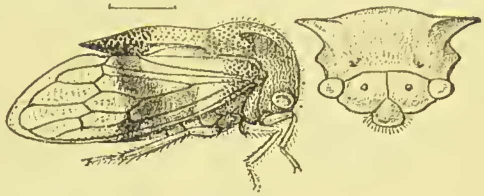

Fig. 50.—*Tricentrus decoratus.*

ochraceous; tegmina subhyaline, talc-like, the veins ochraceous, base ferruginous-brown, a broad black transverse fascia crossing middle, widened at costal area; pronotal lateral processes as seen from above short, strongly recurved, gradually narrowing to apices which are obtusely acute, their anterior margins rounded, viewed from the front much more slender; posterior process moderately short, robust, impinging on tegmina, centrally strongly raised and carinate, the central carination finely continued through pronotum, its apex subacute and about reaching the posterior angle of the inner margin of tegmina; in front of pronotum are two small foveate dark spots situate rather near the inner margin of eyes.

Length 7; breadth lat. pronot. process. 4 millim.

Hab. Burma; Momeit (*Doherty*).

2188. **Tricentrus fairmairei**, *Stål* (Centrotus), *Freg. Eug. Resa, Ins.* p. 284 (1859); *id.* (Tricentrus) *Öfv. Vet.-Ak. Förh.* 1870, p. 728.

Taloipa tinctoria, *Buckt. Trans. Linn. Soc.* ix, p. 334, t. xxii, f. 4 (1905).

Head and pronotum black; body beneath and legs black, tibiæ castaneous or piceous; tegmina pale fuliginous, subhyaline, with a bronzy tint, base black, beyond which is a more or less testaceous transverse fascia; pronotum thickly finely punctate; lateral processes as seen from above short, broad, apically recurved, their anterior margins rounded, longitudinally carinate behind middle, as viewed in front slender and obliquely upcurved; posterior process moderately stout, nearly straight, lateral margins sinuate, narrowing to apex, which is subacute and reaches the posterior angle of the inner tegminal margin, centrally and laterally carinate, the central carination finely continued through pronotum.

Length 6; breadth lat. pronot. process. $3\frac{1}{2}$ millim.

Hab. Bangalore (*fide Buckton*).—Malacca. Philippines.

I am indebted to Prof. Bolivar of Madrid for being able to examine Buckton's species, of which the figure given by that writer has the red coloration near base of tegmina far too highly depicted.

Division *GARGARARIA.*

In this division lateral processes to the pronotum are absent, or at least practically obsolete, a character which separates it from the preceding division; from the *Coccosterphusaria* which follows it can be differentiated by the scutellum, which is complete and not imperfect.

Synopsis of Genera.

A. Posterior pronotal process impinging on scutellum and inner tegminal margin.
  a. Posterior pronotal process strongly sinuately waved .... EBHUL, p. 59.
  b. Posterior pronotal process straight.
    a. Veins to apical areas straight ...... GARGARA, p. 60.
    b. Veins to apical areas curved inwardly .... POGONTYPUS, p. 67.
B. Posterior pronotal process curved and remote from scutellum.
  c. Pronotum not elevated, the posterior process curved, its apical area impinging on tegminal margin .... MACHÆROTYPUS, p. 68.
  d. Pronotum discally elevated, the posterior process straight, its apex impinging on tegminal margin .... DEMANGA, p. 69.

Genus **EBHUL**, nov.

Type, *E. varius*, Walk.

Distribution. Burma.

Pronotum convexly gibbous, anteriorly almost perpendicularly reclined and flattened in front above eyes, centrally longitudinally strongly ridged, its anterior lateral angles slightly prominent, not produced; the posterior process very strongly sinuately waved, arched at base where it is separated from the scutellum, which is not, or very little, longer than broad, and then concavely sinuate and following the direction of the tegmina, its apex reaching the posterior angle of the inner tegminal margin; face centrally longitudinally sulcate; rostrum reaching the posterior coxæ; femora moderately thickened, tibiæ slightly dilated; tegmina broad, ample, crossed by a series of transverse veins at apical area.

Stål (Öfv. Vet.-Ak. Förh. 1869, p. 285), evidently not recognizing the type of this genus from Walker's description, allied it to his *Leptobelus auriculatus*, which has (*ante*, p. 44) been figured and placed in the genus *Pogon*.

2189. **Ebhul varius**, *Walk.* (Centrotus) *List Hom. Suppl.* p. 162 (1858); *Stål* (Leptobelus), *Öfv. Vet.-Ak. Förh.* 1869, p. 285; *Atkins. J. A. S. B.* liv, p. 82 (1885).

Head and pronotum black, the posterior pronotal process

ochraceous at its medial concave sinuation; body beneath, legs and rostrum piceous-brown, tibiæ darker above than beneath; tegmina greyish-white, the elaval area mottled with brown and

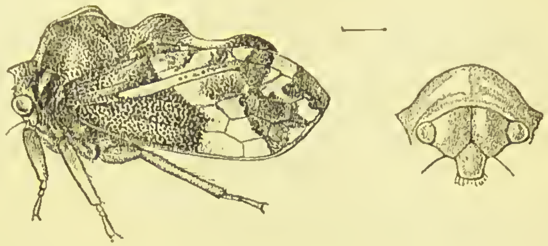

Fig. 51.—*Ebhul varius.*

black, basal area black divided from the clavus by a white line, apical area mottled with black, where some of the veins are rufescent; pronotum finely punctate, its posterior process more strongly so and also centrally ridged and laterally carinate.

Length 5 millim.

Hab. Burma (*Brit. Mus.*).

I only know this species by the unique type in the British Museum.

Genus GARGARA.

Gargara, *Amy. & Serv. Hém.* p. 537 (1843); *Stål, Hem. Afr.* iv, p. 98 (1866); *id. Öfv. Vet.-Ak. Förh.* 1869, p. 283; *Melich. Hom. Faun. Ceylon*, p. 122 (1903).

Mærops, *Buckt. Monogr. Membrac.* p. 257 (1903).

Type, *G. genistæ*, Fabr., a Palæarctic species.

Distribution. Palæarctic, Ethiopian, Oriental, Malayan, and some portions of the Australasian Region.

This genus is allied to *Tricentrus*, Stål, from which it principally differs by the unarmed lateral angles of the pronotum and by the absence of spinules to the posterior trochanters.

2190. **Gargara piceola**, *Melich. Hom. Faun. Ceylon*, p. 122 (1903).

"Face and pronotum finely and thickly punctured, sparsely covered with very short yellowish hairs; middle keel on pronotum very delicate and produced on posterior process, which is very short, longly triangular, smooth or flattened and stretched out straight behind, covering the scutellum; tegmina hyaline, strongly wrinkled, punctured, pitchy-brown, black at base, strongly and coarsely punctured; veins dark brown, strongly and distinctly punctured; wings clouded with light brownish and with dark veins; pectus and abdomen dark brown; legs rusty brown, femora black." (*Melichar.*)

"Length 3 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

I have a single specimen sent to me by Mr. Green from Peradeniya which agrees fairly well with the above description.

2191. **Gargara robusta**, sp. n.

Head, pronotum and body beneath black; femora black, their apices and the tibiæ and tarsi castaneous; tegmina subhyaline, black at base, on apical margin a pale brownish transverse spot near end of clavus and the extreme apical margin of the same colour; in some specimens beyond the middle there are some transverse fuscous markings; pronotum thickly and somewhat coarsely punctate; posterior process short and robust, only just passing apex of claval area, centrally and laterally carinate, the central carination finely continued through pronotum; black basal area of the tegmina punctate.

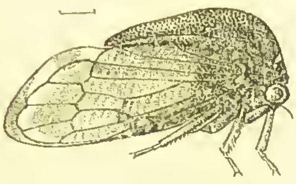

Fig. 52.—*Gargara robusta.*

Length $3\frac{1}{2}$; breadth lat. pronot. angl. 2 millim.

Hab. Calcutta (*Indian Mus. & Coll. Dist.*). Kurseong.

2192. **Gargara affinis**, sp. n.

Closely allied to the preceding species, *G. robusta*, but pronotum dark purplish-brown, not black; tegmina without the apical marginal spots, the base purplish-brown, not black; central carination to pronotum much finer and more obscure, the pronotum distinctly palely pilose, posterior process a little longer and more laterally compressed.

Length 4; breadth lat. pronot. angl. 2 millim.

Hab. Bombay (*Dixon*). Tenasserim; Myitta (*Doherty*).

2193. **Gargara majuscula**, sp. n.

Body and legs black; body beneath and legs greyishly pilose; tegmina pale bronzy-ochraceous, base black, veins (excluding those of clavus and apical area) piceous; pronotum broad and convex, thickly finely punctate, the lateral angles slightly prominent; posterior process slightly passing the posterior angle of the inner

Fig. 53.—*Gargara majuscula.*

margin of tegmina, centrally and laterally carinate, the central carination very obsoletely continued on pronotum, apex acute; base of pronotal front and the face palely pilose; basal black area of tegmina coarsely punctate.

Length 8; breadth lat. pronot. angl. 4 millim.
Hab. Sikhim; Mungphu.

This is the largest species of *Gargara* which has as yet been found in British India, at least so far as my knowledge extends.

2194. **Gargara apicata**, *Melich. Hom. Faun. Ceylon*, p. 124 (1903).

"A small species of short compressed form; face and pronotum thickly and finely punctured, black, with depressed yellowish-grey hair, so that the upper surface appears greyish-yellow in colour; on pronotum there is a weak middle keel which is continued on the short triangular posterior process; tegmina thickly sprinkled with rusty yellow, brownish at base, through the yellow hair of the tegmina indistinct; apical area more hyaline, greyish-white, with a more or less complete transverse band formed of black spots before the apex, before the transverse band is a small black spot on costa; inside the rusty-brown basal area is generally a narrow transverse line formed of white dots, which is usually interrupted at several places; underside black with sparingly-distributed greyish hairs; pectus more yellowly haired; femora dark brown; apices of the femora and the tibiæ and the tarsi rusty brown." (*Melichar.*)

I have a few specimens from Ceylon which generally agree with this description, but there is usually a distinct transverse band of small white spots crossing middle of tegmina, which are evidently variable in markings.

Length 3; breadth lat. pronot. angl. 2 millim.
Hab. Ceylon; Peradeniya (*Green*).

2195. **Gargara tumida**, *Melich. Hom. Faun. Ceylon*, p. 123 (1903).

Face, pronotum and body beneath piceous, very thickly, shortly, finely, palely pilose; sternum and basal halves of lateral abdominal margins more or less cretaceously sericeous; legs ochraceous, shortly, thickly, palely pilose, coxæ and femora (excluding apices) piceous; tegmina subhyaline, the venation more or less fuscous, apical margin broadly pale ochraceous, base piceous and punctate followed by a transverse pale ochraceous fascia; lateral pronotal angles prominent but not produced; posterior process very short and broad, with a subobsolete carinate line which is more obsoletely continued on pronotum, the apex distinctly tricarinate and not reaching apex of claval area; tegmina with the veins on costal area finely palely pilose.

Length $5\frac{1}{2}$–$6\frac{1}{2}$; breadth lat. pronot. angl. 3 millim.
Hab. Ceylon; Kandy, Peradeniya, Maskeliya (*Green*); Puttalam (*Mus. Hongrois*).

2196. **Gargara ferrugata**, *Melich. Hom. Faun. Ceylon*, p. 123 (1903).

Face, pronotum and legs uniformly pale brownish-ochraceous; sternum and abdomen beneath piceous; tegmina a little darker brownish-ochraceous, with the apical margins paler; pronotum

finely granulose, a central fine carinate line traversing it and the posterior process, lateral angles slightly prominent but not produced; posterior process short and robust, impinging on scutellum and tegmina, narrowed and depressed towards apex, which extends to the apex of claval area; tegmina distinctly punctate at base and sparingly, more thickly so on costal area, clothed with very short, fine, adpressed hairs; coxæ and bases of femora piceous, tarsal claws piceous.

Length 3 to $3\frac{1}{4}$; breadth lat. pronot. angl. 2 millim.

Hab. Ceylon; Peradeniya, Keshewa (*Green*); Weligama, Kandy (*Mus. Hongrois*).

2197. **Gargara citrea**, sp. n.

Head, pronotum, body beneath and legs pale yellow; tegmina brownish-yellow; apex of posterior pronotal process black; disk of sternum more or less piceons; pronotum finely grannlose; posterior process short, broad, strongly sinuate at base, its apex subacute and reaching posterior angle of inner margin of tegmina, finely centrally carinate, the carination obscurely coutinued through pronotum: pronotal lateral angles subprominent.

Length $4\frac{1}{2}$ millim.

Hab. Tenasserim; Myitta (*Doherty*).

2198. **Gargara sericea**, sp. n.

Head and pronotum pale greyish-sericeously pilose; disk of pronotum with two narrow central longitudinal castaneous fasciæ, on each side of which is a linear curved submarginal piceous fascia, apices of the lateral angles and apex of the posterior process piceous; body beneath piceous, the lateral areas of the sternum cretaceously sericeous; legs ochraceous; tegmina very pale ochraceous, the veins piceous and provided with very short fine hairs, on disk and near apex sparingly sprinkled with small piceous spots, the base piceous-brown, opaque; the close silky hairs on the pronotum distinctly prevent any punctures from being seen; the posterior process is robust, strongly concavely sinuate on each side of base, considerably raised and centrally keeled, the apex acute and reaching the posterior angle of the inner margin of the tegmina, where it is curved downward.

Length 4; breadth lat. pronot. angl. 2 millim.

Hab. Ceylon; Kerbuwa (*Green*).

2199. **Gargara trinotata**, sp. n.

Pronotum dark chocolate-brown, very thickly pilose; disk with three greyish-sericeous longitudinal lines, the lateral ones curved inwardly both anteriorly and posteriorly, middle of posterior process greyishly sericeous; face and body beneath black, lateral margins of abdomen greyishly sericeous; legs testaceous, femora (excluding apices) black; tegmina for basal three-fourths chocolate-brown, the

veins testaceous, the base darker, apical fourth hyaline, with a transverse series of three black dots, the apical margin more or less brownish; posterior pronotal process strongly sinuate, the apex recurved to posterior angle of inner tegminal margin, centrally carinate, the carination obsoletely continued through pronotum; lateral angles subprominent.

Length $4\frac{1}{2}$ millim.

Hab. Tenasserim; Myitta (*Doherty*).

2200. **Gargara myittæ**, sp. n.

Head and pronotum castaneous-brown, body beneath paler brown with the lateral areas of the sternum piceous; legs pale testaceous; tegmina subhyaline, the base castaneous-brown, the veins on disk darkly piceous, an irregular transverse fascia before apex and the apical margin fuscous-brown; pronotum thickly coarsely punctate and sparingly pilose, the posterior process centrally carinate, the carination extending through the pronotum, apex black and somewhat suddenly narrowed; the brown basal area of the tegmina distinctly punctate.

Length 5; breadth lat. pronot. angl. 2 millim.

Hab. Tenasserim; Myitta (*Doherty*).

2201. **Gargara sikhimensis**, sp. n.

Head and pronotum black, finely palely pilose, posterior pronotal process with its central area (excluding lateral margins) ochraceous; body beneath black or piceous; legs ochraceous, femora (excluding apices) black; tegmina subhyaline, the veins piceous or fuscous, base piceous, immediately followed by a pale transverse fascia, before apex an irregular transverse fuscous fascia and the extreme apical margin of the same colour, apical costal margin ochraceous; pronotum with the punctures indistinctly seen through the pilose surface; posterior process broad, clearly coarsely punctate, with an obscure central carination, which is, however, very strongly pronounced on its apical area, the lateral margins are a little convex and the apex somewhat suddenly developed.

Length 5; breadth lat. pronot. angl. $2\frac{1}{3}$ millim.

Hab. Sikhim. Madras Prov.; Kotagiri (*Atkins. Coll. & Brit. Mus.*).

This species is to be recognized by the shape and colour of the posterior pronotal process, its convex lateral margins, and by its ochraceous central area not reaching the dark margins.

2202. **Gargara rivulata**, sp. n.

Head and pronotum black; body beneath and legs piceous; tarsi brownish-ochraceous; tegmina subhyaline, the venation, as far as the commencement of the apical areas, black, the veins of

the apical areas ochraceous; base, apical third of claval area, a transverse fascia at base of apical area, which is inwardly obliquely continued to apical margin, and the upper half of apical margin, black; pronotum granulose, the lateral angles obtusely subangularly prominent; the posterior process gradually narrowing to apex, which is acute and reaching the posterior angle of the inner margin of tegmina, centrally and laterally carinate, the central carination finely continued through pronotum; the black basal area of tegmina coarsely punctate.

Length $5\frac{1}{2}$ to 6; breadth pronot. angl. 3 millim.

Hab. Sikhim; Mungphu (*Colls. Dist. & Brit. Mus.*).

Allied to *G. sikhimensis*, but with the pronotum more robust; colour of legs and posterior pronotal process also different.

2203. **Gargara mixta**, *Buckt.* (Mærops) *Monogr. Membrac.* p. 257, t. lix, f. 8, *a* (1903).
Gargara variegata, *Melich. Hom. Faun. Ceylon,* p. 123 (1903), nom. præocc. *Sign.* 1858.

Pronotum brownish-ochraceous, very closely, thickly, palely pilose, a central pale subcarinate line continued through pronotum and its posterior process, the latter paler, much less pilose and with its apex piceous; face piceous, thickly palely pilose, in some specimens the piceous ground-colour is invisible; body beneath piceous, legs ochraceous, coxæ and bases of femora piceous; tegmina greyish, semi-opaque, base and costal area ochraceous, in some specimens the whole surface is more or less speckled with fuscous and in others with the apical venation of that colour; pronotum with the lateral angles angularly prominent but not produced; the posterior process robust, gradually narrowing to apex, impinging on scutellum and tegmina and about reaching the posterior angle of the inner margin of the latter.

Length 5; breadth lat. pronot. angl. $2\frac{1}{2}$ to 3 millim.

Hab. Bombay (*Dixon*); Calcutta (*Coll. Dist.*). Tenasserim; Myitta (*Doherty*). Ceylon; Balongoda (*Buckton Coll.*); Colombo, Peradeniya (*Green*); Nalanda, Kekirawa, Puttalam (*Mus. Hongrois*).

I have compared Buckton's type with a cotype of Melichar's *variegata* kindly forwarded to me for that purpose by Dr. Horvath.

2204. **Gargara flavolineata**, sp. n.

Head and pronotum black, finely palely pilose, central area to posterior process, and sometimes the central carinate line to pronotum, ferruginous-brown; body beneath and femora black, apices of femora and tibiæ and the tarsi dark ochraceous; tegmina subhyaline, the base ferruginous-brown, opaque; pronotum somewhat obscurely punctate or punctures mostly covered by the pale pilosity; posterior process robust, reaching the posterior angle of the inner margin of tegmina, centrally and laterally

carinate, the central carination continued through pronotum; tegmina with the dark opaque base punctate.

Length 4 to $4\frac{1}{2}$; breadth lat. pronot. angl. 2 millim.

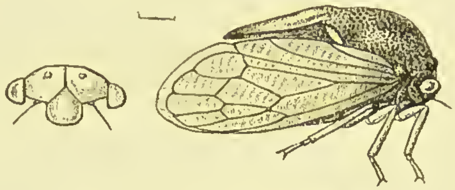

Fig. 54.—*Gargara flavolineata.*

Hab. Bengal; Ranchi. Ceylon; Peradeniya (*Green*). Burma (*Buckton Coll.*).

In some specimens the ferruginous-brown area to the posterior pronotal process is very obscure; in others the apical margin to the tegmina is more or less fuscous.

2205. **Gargara delimitata,** sp. n.

Head, pronotum and legs castaneous-brown; body beneath piceous; a piceous central longitudinal fascia on anterior area of pronotum; tegmina subhyaline, the base and a broad transverse fascia beyond middle piceous-brown; head and pronotum finely palely pilose, the lateral angles obtusely subprominent; the posterior process nearly straight, apically acute and reaching posterior angle of inner margin of tegmina, centrally and laterally carinate, the central carination continued very finely and obscurely through pronotum; tegmina with the area of the basal opaque coloration pilose and punctate.

Length 4; breadth pronot. angl. 2 millim.

Hab. Assam; Margherita (*Coll. Dist.*).

2206. **Gargara alboapicata,** sp. n.

Piceous, very thickly palely pilose; legs ochraceous, femora (excluding apices) piceous; tegmina piceous, a spot on clavus and a narrow transverse fascia near end of clavus and extending about halfway across tegmen, creamy-white, apex pale hyaline; pronotum thickly punctate and pilose; the posterior process short, broad at base, from about middle narrowing to apex which is acute and reaching posterior angle of inner tegminal margin, centrally somewhat strongly carinate, the carination continued obsoletely through pronotum.

Length 3 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus POGONTYPUS, nov.

Type, *P. complicatus*, Melich.

Distribution. Ceylon.

Intermediate between *Gargara* and *Machærotypus*. From the first it is distinguished by the larger and more slender posterior pronotal process and also by the strongly curved veins to the apical areas of the tegmina, thus resembling a radical character of the genus *Pogon*; from *Machærotypus* it is separated by the more obliquely curved veins to the tegminal apical areas, and also by the posterior pronotal process which is not strongly elevated above the scutellum, but is almost completely depressed to it and the inner margins of the tegmina.

2207. **Pogontypus complicatus**, *Melich.* (Machærotypus) *Hom. Faun. Ceylon*, p. 125 (1903).

"Very close to *M. discretus*, Melich.; the posterior pronotal process depressed, weakly wave-like, curved, in middle and at tip black; pronotum with three longitudinal keels, middle keel extending from anterior margin of pronotum over the whole surface

Fig. 55.—*Pogontypus complicatus.*

and passing into the upper corner of the spine process, lateral keels very short, externally slightly convex; tegmina rusty-yellowish, at base and on costal margin darker; legs rusty-yellow." (*Melichar.*)

Length 4 millim.

Hab. Ceylon; Negombo, Pattipola (*Mus. Hongrois*).

I am indebted to Dr. Horvath, of Budapest, for the opportunity of figuring this species.

2208. **Pogontypus horvathi**, sp. n.

Pronotum ochraceous, its posterior process greyish-white; face, middle and apex of posterior pronotal process and the tegmina dark purplish; tegmina with a costal spot at about one-fourth from apex and the apical margin greyish-white; sternum purplish-brown; abdomen beneath and legs ochraceous, abdominal segments with transverse purplish-brown fasciæ; pronotum rugulose, longitudinally tricarinate, the lateral carinations curved and abbre-

viated, the posterior process centrally and laterally carinate, apically recurved, impinging on tegmina and passing the posterior angle of inner margin.

Length 4 millim.

Hab. Ceylon ; Yatiyantota (*Green*).

Genus MACHÆROTYPUS.

Machærotypus, *Uhler, Proc. U.S. Nat. Mus.* xix, p. 284 (1896) ; *Melich. Hom. Faun. Ceylon*, p. 124 (1903).

Type, *M. sellatus*, from Japan.

Distribution. Oriental and Eastern Palæarctic Regions.

Dr. Uhler does not appear to have described this genus beyond the structural characters given in his description of the typical species *. I therefore reproduce Melichar's description, which is probably the valid one, and in that case *M. incultus*, Melich. should be the type of the genus.

Similar to *Gargara* in so far as the pronotum is only provided with a posterior process, which, however, is not broadly triangular as in *Gargara*, but long, slender, prismatic and generally more or less strongly wave-like, curved ; the lateral processes are absent ; tegmina somewhat long, with four apical cells (in *Gargara* three); eyes very prominent, the slender posterior process induces a comparison with *Machærota* (Melichar). We do not quite understand Dr. Melichar's enumeration of the tegminal apical cells in the above description.

2209. **Machærotypus incultus**, *Melich. Hom. Faun. Ceylon*, p. 124 (1903).

Head, pronotum and scutellum black ; body beneath black, the legs testaceous ; tegmina bronzy subhyaline, the base, costal and radial areas black ; pronotum somewhat coarsely punctate and

Fig. 56.—*Machærotypus incultus.*

distinctly longitudinally carinate ; the posterior process slender, centrally and laterally carinate, curved at base and remote from

* Mr. Samuel Henshaw in his referential Catalogue of the Hemiptera, described by Uhler (Psyche, 1903), only quotes the above publication for *Machærotypus*.

scutellum, apical area deflected and apex recurved, a little passing posterior angle of inner margin of tegmina; the black areas of the tegmina very coarsely punctate. The second apical vein (counting from inner margin) is more curved and like the first than shown by the artist in the above figure.

Length $4\frac{3}{4}$ to 5 millim.

Hab. Ceylon; Pattipola (*Mus. Hongrois & Coll. Dist.*).

I am indebted to Dr. Horvath, of Budapest, for the specimen of this species which is here figured.

2210. **Machærotypus ? discretus**, *Melich. Hom. Faun. Ceylon*, p. 125 (1903).

"Similar to *M. incultus* but more robust and more strongly built, the posterior process distinctly wave-like, curved; tegmina pale yellowish, hyaline, the base and costal cell thickly punctured and brownish; behind the apex of clavus a brownish marginal spot; wings hyaline, vitreous; legs rusty-brown, the femora darker." (*Melichar.*)

Length 5 millim.

Hab. Ceylon (*Berlin Museum*).

I have not seen this species and therefore cannot state definitely whether it should (according to my view) be placed in *Machærotypus* or in the previous genus I have proposed as *Pogontypus*.

Genus DEMANGA, nov.

Type, *D. sooknana*, Dist.

Distribution. British India.

Face strongly deflected; ocelli about as far from eyes as from each other; pronotum laterally unarmed, the disk elevated, posterior process at a distance from scutellum, straightly obliquely deflected from near base and impinging on inner margin of tegmina near posterior angle; scutellum about as long as broad, the apex biangulate; tegmina with four apical and two discoidal areas; legs simple; the tibiæ slightly ampliated; wings with four apical areas.

2211. **Demanga sooknana**, sp. n.

Head and pronotum black, thickly ochraceously pilose; body

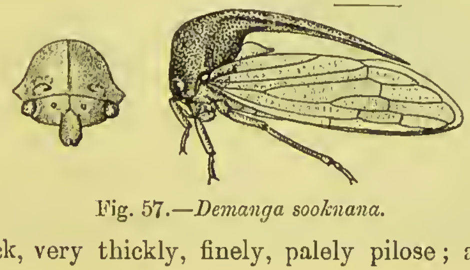

Fig. 57.—*Demanga sooknana.*

beneath black, very thickly, finely, palely pilose; an ochraceous

sericeous spot on each side of apex of face before clypeus; legs castaneous, the femora (excluding apices) black; tegmina bronzy subhyaline, the venation castaneous-brown, brownishly opaque and coarsely punctate at base; pronotum finely punctate, the punctures almost hidden under the pilose surface, the lateral angles subangularly slightly prominent, the posterior process strongly centrally and laterally carinate, the central carination finely continued through pronotum, its apex acute and impinging on the inner margin of tegmina a little beyond its posterior angle; scutellum with a transverse sericeous ochraceous spot on each side of basal margin.

Length 8; breadth pronot. angl. 3 millim.

Hab. Sookna, 533 feet.

Division *COCCOSTERPHUSARIA*.

In this division there is no complete scutellum; the mesonotum is armed at the apex with two distinct prolongations, acute or otherwise; the pronotum behind the lateral angles gradually passes into the posterior process.

Synopsis of Genera.

A. Pronotum tuberculous, the posterior process concavely depressed at base and laminately convexly raised at apex .... COCCOSTERPHUS, p. 70.

B. Pronotum not tuberculous, the posterior process straight, neither raised nor concavely sinuate.

- a. Tegmina with three apical areas; posterior pronotal process short and slender .... YASA, p. 74.
- b. Tegmina with five apical areas; posterior pronotal process moderately long and broad on basal area .... KANADA, p. 74.

Genus COCCOSTERPHUS.

Coccosterphus, *Stål, Hem. Fabr.* ii, p. 51 (1869); *Atkins. J. A. S. B.* liv, p. 88 (1885); *Melich. Hom. Faun. Ceylon,* p. 120 (1903).

Type, *C. minutus*, Fabr.

Distribution. Oriental Region.

"Body small, obovate; head with the eyes equal in breadth to the anterior part of the pronotum, with the eyes deflexed, somewhat transverse, slightly inflexed beneath the eyes, front a little elevated, not freely prominent, with the apical margin a little prominent; ocelli about twice as far apart from each other as from the eyes; pronotum moderately convex, laterally unarmed, gradually narrowed behind the slightly prominent lateral angles and gradually passing into the posterior process; posterior process entire on both sides at base, not sinuate, gradually acuminate, straight, slightly deflexed at apex, reaching apex of clavus, somewhat highly ridged, much depressed in the middle; no complete scutellum; mesonotum

furnished on both sides at apex with a spinule turning backward; tegmina short, not extending beyond abdominal apex, gradually somewhat amplified towards apex which is obliquely rounded, opaque and coriaceous at the base; exterior vein of clavus united with the commissure at some distance beyond the middle; corium emitting the ulnar and radial veins from the base, ulnar vein somewhat forked before middle of corium, two discoidal areolas or, if the areola behind the fork of the ulnar vein be included, three, the exterior discoidal areole stylated, stylus separating the interior (or intermediate) discoidal areole from the first apical area, five apical areas; wings with three apical areas; legs moderate; tibiæ prismatic, anterior a little depressed; anterior trochanters unarmed within.

"A curious genus allied to *Gargara*, but very distinct in having the pronotum behind the lateral angles gradually passing into the posterior process which has no sinus at the base; there is no produced complete scutellum, but the mesonotum is armed at the apex with two very distinct spines." (*Stål.*)

2212. **Coccosterphus minutus**, *Fabr.* (Membracis) *Ent. Syst. Suppl.* p. 514 (1798); *id.* (Centrotus) *Syst. Rhyng.* p. 22 (1803); *Fairm.* (Scaphula?) *Ann. Soc. Ent. Fr.* 1846, p. 495; *Stål* (Coccosterphus), *Hem. Fabr.* ii, p. 51 (1869); *Atkins. J. A. S. B.* liv, p. 89 (1885); *Melich. Hom. Faun. Ceylon*, p. 121 (1903).

I have not seen this species which Stål has thus described:—

"Black, flavescent-greyish-sericeous; head, pronotum and tegmina remotely sprinkled with somewhat large granules; pronotum furnished with a ridge or keel, obsolete anteriorly, very elevated in the posterior process, in its medium depressed part interrupted; tegmina palely greyish-flavescent, subpellucid, obsoletely dotted with white, veins here and there infuscate, granules and almost third basal part black, black part punctured, ulnar vein running through this part greyish-flavescent." (*Stål.*)

"♂. Long. $3\frac{1}{4}$; lat. 2 millim."

"*Hab.* Tranquebar."

2213. **Coccosterphus decoloratus**, sp. n.

Black; tegmina variable in colour and pattern, being more or

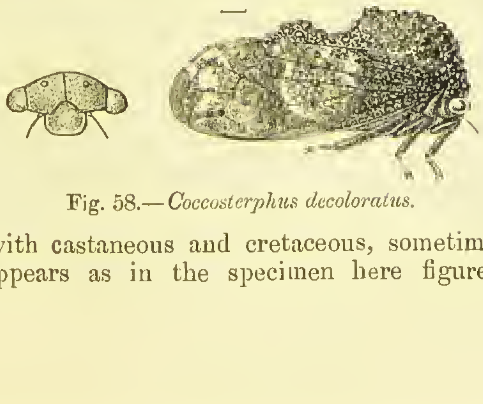

Fig. 58.—*Coccosterphus decoloratus.*

less tinted with castaneous and cretaceous, sometimes the paler coloration appears as in the specimen here figured, in other

examples there is a broad subbasal and a broad subapical transverse fascia, the black areas being more or less marked with small raised cretaceous spots; legs piceous, tarsi ochraceous; pronotum strongly tuberculous, strongly ridged and moderately arched, before the base of posterior process it is obtusely angulate; posterior process concave at base and strongly convexly laminately produced before apex, the central ridge finely tuberculous; tegmina more or less finely tuberculous, especially on the veins.

Length $2\frac{1}{2}$ millim.

Hab. Calcutta (*Indian Mus. & Coll. Dist.*).

2214. **Coccosterphus tuberculatus**, *Motsch.* (Anomus) *Étud. Ent.* viii, p. 109 (1859); *Melich.* (Coccosterphus) *Hom. Faun. Ceylon*, p. 121 (1903).

Gargara fasciata, *Melich. Hom. Faun. Ceylon*, p. 122 (1903).

"Similar to *variegata*; front and pronotum rusty-brown, thickly and finely punctured, sparsely covered with extremely short, depressed, greyish-white hairs; the middle keel obsolete on pronotum; posterior process broad, triangular, reaching to tip of clavus, straight, in middle distinctly keeled; tegmina hyaline, greyish-white, rusty-brown at base to nearly one-third of length of

Fig. 59.—*Coccosterphus tuberculatus.*

tegmina and a rusty-brown transverse fascia beyond the middle, extending from tip of clavus to costal margin, the transverse fascia generally paler than the dark basal area; all the veins rusty-yellow; wings hyaline with rusty-yellow veins; pectus and abdomen dark brown; legs rusty-brown, claws darker." (*Melichar.*)

The greyish-white markings on the front of the pronotum as shown in the above figure are neither mentioned by Motschoulsky nor Melichar, who probably examined old specimens.

"Length ♀ $3\frac{1}{2}$ millim."

Hab. Ceylon; Peradeniya (*Green*), Kala-Weisa and Puttalam (*fide Melichar*).

The specimen figured is a cotype of *Gargara fasciata*, Melich. in the Museum Hongrois at Budapest, and was kindly sent to me for that purpose by Dr. Horvath. I reproduce Melichar's description.

2215. **Coccosterphus obscurus**, sp. n.

Black, tegmina piceous sprinkled with small cretaceous spots, in some specimens, as the one here figured, the spots almost form a central transverse fascia; legs black, the tarsi stramineous; pronotum tuberculous and finely granulose between the tubercles,

Fig. 60.—*Coccosterphus obscurus.*

centrally the tubercles form a longitudinal carination; posterior process rather slender, laminately convexly gibbous before apex which about reaches the posterior angle of the inner margin of the tegmina; tegmina very finely granulose at base.

Length $2\frac{1}{2}$ to 3 millim.

Hab. Ceylon; Peradeniya, Heneratgoda (*Green*).

2216. **Coccosterphus mucronicollis**, *Motsch.* (Anomus) *Étud. Ent.* viii, p. 109 (1859); *Melich.* (Coccosterphus) *Hom. Faun. Ceylon*, p. 120 (1903).

Dark purplish-brown, finely greyishly pilose; body beneath piceous, posterior margins of the abdominal segments dull ochraceous; femora black, their apices and the tibiæ pale testaceous, tarsi stramineous, the claws piceous; tegmina purplish-

Fig. 61.—*Coccosterphus mucronicollis.*

brown sprinkled with small paler spots, base opaque and thickly greyishly pilose, a few greyish-white spots in transverse series usually immediately following the basal area and another similar transverse series at about middle, apical area largely pale hyaline; pronotum densely pilose above which the tubercles are distinctly visible; posterior process robust, moderately laminately convexly gibbous before apex which does not reach the posterior angle of the inner margin of the tegmina.

Length 4 to 5; breadth lat. pronot. angl. 2 millim.

Hab. Ceylon; Kesbewa (*Green*).

Genus **YASA**, nov.

Type, *Y. greeni*, Dist.
Distribution. Ceylon.

Pronotum without lateral processes, the posterior process short, slender and recurved, its apex not nearly reaching the posterior angle of the inner margin of the tegmina; lateral angles of the mesonotum visible, produced but not spinose; tegmina somewhat elongate, inner margin beyond clavus distinctly notched and gibbously raised, apical areas three and very large; ocelli nearer to eyes than to each other; posterior femora distinctly curved.

2217. **Yasa greeni**, sp. n.

Face, pronotum and body beneath black; femora black, their apices and the tibiæ and tarsi ochraceous, tibiæ annulated with fuscous; tegmina subhyaline black at base and immediately followed by a transverse pale fascia, central area piceous, darkest on costal half, apical area pale hyaline, extreme apical margin

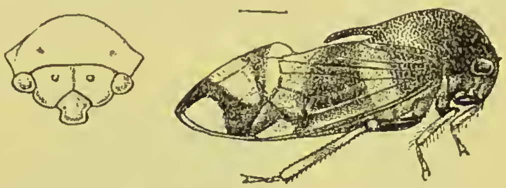

Fig. 62.—*Yasa greeni.*

connected with an oblique fascia which is again connected with a transverse fascia joining inner margin near posterior angle, piceous; pronotum rugulose, the posterior process short, slender and recurved, not extending beyond the scutellar region; veins of tegmina clothed with fine hairs, the dark basal area punctate; tibiæ coarsely pilose.

Length 6; breadth lat. pronot. angl. 2 to $2\frac{1}{3}$ millim.

Hab. Ceylon; Peradeniya, Kandy (*Green*).

Genus **KANADA**, nov.

Type, *K. irvinei*, Dist.
Distribution. Bengal.

Body subelongate; face convexly deflected, ocelli almost as far apart from each other as from eyes; pronotnm subelongate, laterally unarmed, strongly and broadly foveate on each side behind eyes, only moderately convex, behind the lateral angles gradnally passing into the posterior process which is broad at base, straight, acutely narrowed on its apical area, the apex reaching or slightly passing the posterior angle of the inner margin of tegmina;

no complete scutellum; mesonotum furnished on both sides at apex with a somewhat long laminate spine directed backward; femora moderately thickened, tibiæ strongly longitudinally grooved; tegmina extending beyond the abdominal apex, subhyaline, apical areas five, discoidal areas two.

2218. **Kanada irvinei**, sp. n.

Pronotum ochraceous; lateral foveæ behind eyes and apex of posterior process black; face and sternum black, abdomen beneath dull testaceous; femora dull castaneous, their apices and the tibiæ and tarsi ochraceous, tarsal claws black; tegmina subhyaline, talc-like, wrinkled, base ochraceous and opaque; pronotum thickly,

Fig. 63.—*Kanada irvinei.*

palely, finely pilose, lateral angles very obtusely prominent; posterior process slightly elevated at base, broad for about two-thirds its length, then narrowed to apex which is elongately acute, centrally carinately ridged, the carination very obscure and subobsolete on disk of pronotum.

Length $3\frac{1}{2}$ millim.

Hab. Bengal; Ranchi (*Irvine*).

Species reported from India, but apparently in error.

The following two species described under the genera *Hemiptycha* and *Scaphula*, would, if their local habitats could be authenticated, introduce a third subfamily, *Darninæ*, into the Membracidæ of British India. This, however, is extremely unlikely, but descriptions of the species are appended. Diagnoses of the presumed genera are unnecessary.

2219. **Hemiptycha crux**, *Linn.* (Cicada) *Syst. Nat.* (ed. x.) i, p. 435 (1758); *id. Mus. Lud. Ulr.* p. 154 (1764); *Stål* (Hemiptycha), *Berl. Ent. Zeitschr.* x, p. 389 (1866); *Atkins. J. A. S. B.* liv, p. 90 (1885).

"Fuscous-testaceous; thorax black, anteriorly obsoletely sprinkled testaceous, behind the lateral processes broadly margined with yellow, this yellow margin narrowed backward, extending beyond the middle of the posterior process; tegmina fuscous; pronotum distinctly punctulate, furnished with a very long and

strong horn above the lateral angles, compressed, turning outwards and moderately upwards, at the apex obliquely truncated, anteriorly rounded, at the apex posteriorly acuminate, slightly amplified towards the tip; posterior process gradually acuminate, extending a little beyond the tip of the tegmina, apex itself very slightly recurved; dorsum seen from the side somewhat straight and with a distinct ridge, lateral margins straight." (*Stål.*)

Length 18; exp. lat. pronot. process. 17 millim.

Hab. India? (*fide Linnæus*).

2220. **Scaphula*** **semiatra**, *Fairm. Ann. Soc. Ent. Fr.* 1846, p. 494, t. iii, ff. 18, 19, t. vii, f. 20; *Atkns. J. A. S. B.* liv, p. 91 (1885).

"Brownish-black, shining; pronotum somewhat elevated in the middle, terminating posteriorly by a defined rounded border; tegmina free, shining black, the apical third transparent; abdomen beneath, anterior legs, knees and tarsi yellowish; posterior legs blackish." (*Fairmaire.*)

"Length 6 millim.

Hab. Coromandel? (*fide Fairmaire*).

Gen ? **fuscata**, *Fabr.* (Membracis) *Syst. Rhyng.* p. 9 (1803); *Fairm. Ann. Soc. Ent. Fr.* 1846, p. 247; *Atkns. J. A. S. B.* liv, p. 79 (1885).

"Thorax foliaceous, rounded, fuscous; streak before the anterior margin and posterior fascia white." (*Fabricius.*)

This species was localized as from "India," but it has never been identified by other workers.

Kleidos vomeris, *Buckt. Monogr. Membrac.* p. 214, t. xlviii, f. 2, *a* (1903); *Melich. Wien. Ent. Zeit.* xxiv, p. 296 (1905).

There is little doubt as to this being an Ethiopian species. Buckton gave the habitat as Ceylon, probably misled by an erroneous label on the specimen submitted to him ("Wollaston Collection"). I now possess a cotype of the species identified and labelled by Buckton himself from Old Calabar, and he more recently described a species from Zanzibar in the same genus. Moreover, Melichar has recorded *K. vomeris* from East Africa.

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* *Scaphula* is a preoccupied name for which Kirkaldy has proposed *Tristan* as a substitute (Entomologist, xxxiv, p. 6, 1901).

The following very peculiar genus affords considerable taxonomical difficulty. Its describer seems quite correctly to have placed it near "*Æthalion*, Latr.," which Stål has located at the end of the *Centrotinæ* (Membracidæ). Ashmead ('Ent. Americana,' v, p. 125, 1889) uses *Æthalion* as the type of his subfamily *Æthalioninæ*, which he places in the Blythoscopidæ, influenced by the "general facies and the position of the ocelli."

The provisional view held here is that *Darthula* is allied to *Æthalion* and the position selected by Stål for the latter genus is used, rather than that of Ashmead. Some caution is, however, necessary in making this choice, for despite frequent statements to the contrary, some writers, especially Bergroth and Reuter, have chosen to regard these volumes on the Indian Rhynchota as purely taxonomical contributions and to severely criticise any departure from what, according to their point of view, should be a compulsory classification. From this ruling we entirely dissent, and regard final classificatory schemes as yet unattained. Our object is to render the Indian Rhynchota recognizable, not for pedantic division, but for the more important object of bionomical and economic observation.

Genus DARTHULA.

Urophora, *G. R. Gray* *, *Griff. Ed. Anim. Kingd., Ins.* ii, p. 261 (1832), nom. præocc.
Darthula, *Kirk. Entomologist,* 1900, p. 242 (n. nom.).

Type, *D. hardwicki*, Gray.

Distribution. Oriental Region.

Face concealed beneath the frontal edge of pronotum, the eyes only visible as seen from above, between eyes convexly transversely ridged, before which it is foveate and beyond which it is laterally deflected; pronotum moderately compressed with a central strong longitudinal lunulate ridge, as seen from above the lateral margins narrowing anteriorly, the posterior margin carinate; scutellum distinct, triangular, apically subacute; abdomen provided with a long apical process, about or nearly as long as the whole body, covered with long bristly hairs, with a strong triangular tubercle at base, its apex inconspicuously bituberculate; femora moderately thickened, tibiæ much shorter than femora, tarsi with the apical joint longer than the two basal joints together, claws very robust; abdomen narrowing to apex, beneath concave, posterior segmental margins ridged, above convex; tegmina coriaceous, apically narrowed, the apex obtusely subacute, costal margin moderately convex, densely and reticulately veined, the veins raised and prominent, costal area very broad; wings shorter and narrower than tegmina, with two long apical areas, anal area divided into irregularly shaped interspaces.

* Kirkaldy (*supra*) gives Westwood as the describer of this genus and the type *hardwicki*, but does not state his reason for doing so.

2221. **Darthula hardwicki**, *Gray* (Urophora), *Griff. Anim. Kingd., Ins.* ii, p. 261, t. xc, f. 3; t. cxxxviii, f. 5 *a, d* (1832); *Atkins. J. A. S. B.* liv, p. 116 (1885); *Kirk.* (Darthula) *Entomologist*, 1900, p. 242.

Pronotum and scutellum ferruginous or piceous-brown, the central and posterior marginal carinations paler in hue; abdomen and body beneath testaceous-brown; femora testaceous, tibiæ and tarsi piceous; tegmina ferruginous or piceous-brown, with the venation testaceous; pronotum finely rugulosely punctate, the

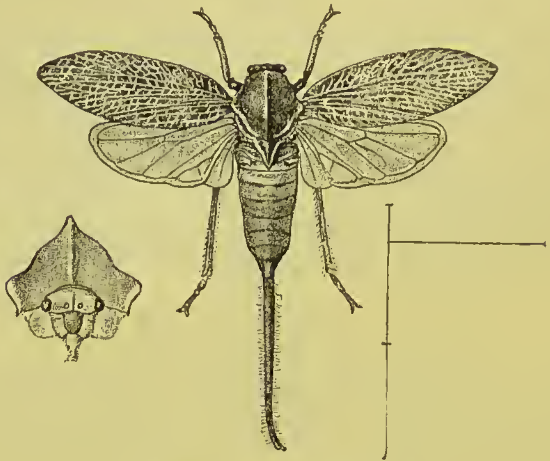

Fig. 64.—*Darthula hardwicki.*

central carination laminately raised; abdomen above with the segmental margins more or less ochraceous; wings pale bronzy-brown; posterior process piceous or piceous-brown, clothed with erect bristly hairs.

Length (excl. post. process) 12 to 17; length post. process 13 to 17; exp. tegm. 26 to 38 millim.

Hab. Sikhim. Assam; Margherita (*Doherty*), Khási Hills (*Chennell*), Nága Hills (*Godwin-Austen*), Darjeeling (*Coll. Dist.*). Nepal. Burma; Ruby Mines (*Doherty*).—W. Yunnan (*Coll. Dist.*).

Family CERCOPIDÆ.

Ranatræ, *Germ.* (part) *Mag. Ent.* iv, p. 34 (1821).
Cercopides, *Amy. & Serv. Hém.* p. 558 (1843).
Cercopida, *Stål, Hem. Afric.* iv, p. 54 (1866) ; *id. Hem. Fabr.* ii, p. 11 (1869) ; *Fieb. Rev. Mag. Zool.* (3) iii, p. 328 (1875).
Cercopina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 718.
Cercopidæ, *Atkins. J. A. S. B.* liv, p. 5 (1885).

Face convex, or produced aud compressed on either side ; ocelli two, placed uear base of vertex ; pronotum large, sexangular or trapezoidal ; scutellum (excepting in the *Machærotinæ*) small or medium sized, triangular : tegmina usually coriaceous ; legs remote from the sides of the body, with the coxæ, especially the posterior pair, short ; tibiæ cylindrical, the posterior pair furnished with one or two spines and with a circlet of spinules at the apex.

The Cercopidæ of British India are notable as including the membracid-like *Machærotinæ*, and exhibiting a great abundance of large aud beautiful species in the *Cercopinæ*. We now possess a considerable knowledge of the family. The Neotropical fauna has been largely described by Stål, Berg, and Fowler. Stål, Karsch, and the present writer among others, have described many of the Ethiopian species and genera. The Nearctic and Palæarctic Cercopidæ are best known and more thoroughly worked ; while Matsumura and Oshanin have lately published enumerations and descriptions of those found in Japan and China. In Australia probably most still requires to be done.

Synopsis of Subfamilies.

A. Anterior margin of pronotum rounded or angulate ; eyes moderately transverse.
  a. Scutellum strongly elevated, posteriorly compressed, armed with a long apical spine . . *Machærotinæ.*
  b. Scutellum flat, triangular . . . . *Aphrophorinæ.*
B. Anterior margin of pronotum straight ; eyes equally long as broad . . . . *Cercopinæ.*

Subfamily I. MACHÆROTINÆ.

Machærotida, *Stål, Hem. Afric.* iv, p. 55 (1866).
Machærotina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 727 ; *Atkins. J. A. S. B.* liv, p. 22 (1885).

Anterior margin of pronotum round or angular ; legs usually transverse ; scutellum much elevated, compressed posteriorly, furnished with a long or moderately long apical spine.

This subfamily distinctly links the Membracidæ with the Cercopidæ. Some writers reverse the position of these two families ; but in either case the *Machærotinæ* are placed next to the Membracidæ, with which they are often confused by those who have not specially studied the Homoptera.

Synopsis of Genera.

A. Scutellum very prominent, obliquely raised, and furnished with a long apical spine .. MACHÆROTA, p. 80.
B. Scutellum not prominently raised, centrally ovately foveate, apical spine of moderate length .... MACHÆROPSIS, p. 84.

Genus MACHÆROTA.

Machærota, *Burm. Handb. Ent.* ii, 1, p. 128 (1835); *Atkins. J. A. S. B.* liv, p. 22 (1885); *Melich. Hom. Faun. Ceylon*, p. 137 (1903).
Narnia, *Walk. J. Linn. Soc., Zool.* x, p. 192 (1868).

Type, *M. ensifera*, Burm.

Distribution. Oriental, Malayan, and Australasian Regions.

"Head small, face tumid, confluent with the vertex, furrowed in the middle, elevated at the posterior margin, bearing the two ocelli which are approximate; basal joints of antennæ large, terminal setæ long, fine, curved; pronotum septangular, arcuate; scutellum larger, produced backward, with a median longitudinal groove which is continued into a long, pointed, acute upwardly, curved downwardly, sabre-like process; tegmina hyaline, with seven cells at the apex and a large middle cell surrounded by a forked-vein; legs simple, hinder tibiæ and two first joints of tarsi with a circlet of spinules." (*Burmeister.*)

The above description, as translated by Atkinson, gives all the salient points of this remarkable genus, the peculiar habits of which are detailed under the description of *M. guttigera*, Westw.

2222. **Machærota ensifera**, *Burm. Handb. Ent.* ii, 1, p. 128 (1835); *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 727; *Sign. Ann. Soc. Ent.* (1879), *Bull.* p. xlviii; *Atkins. J. A. S. B.* liv, p. 22 (1885).

Pale ochraceous, the second and third abdominal segments above, face (excluding lateral margins), a space on each side of

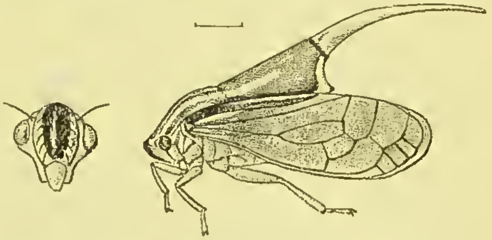

Fig. 65.—*Machærota ensifera.*

metanotum, and the base of the posterior scutellar process, black; pronotum with four longitudinal greyish fasciæ, the lateral margins narrowly of the same colour; scutellum with the lateral margins

greyish, and centrally longitudinally more obsoletely of the same colour; tegmina pale ochraceous, subhyaline, the venation prominent especially on apical area; pronotum and scutellum finely granulose; posterior process long, strongly arched, its apex extending rather beyond the apices of tegmina.

Length incl. tegm. 6 millim.

Hab. Silhet (*fide Signoret*).—Philippines.

2223. **Machærota guttigera**, *Westw. Tr. Ent. Soc.* 1886, p. 332, t. viii, ff. 1–15; *Melich. Hom. Faun. Ceylon*, p. 137 (1903).

I have not seen this species. Westwood writes:—"The Ceylon insect agrees with the type (*M. ensifera*, Burm.) in size and general appearance; but the head is more pointed in front and is concolorous, whereas it is black in *M. ensifera*, which latter is destitute of the very minute dark dots with which the Ceylon species is marked both on the body and also on the fore wings. The specimens of the latter (preserved, however, in spirits) are uniformly pale luteous-coloured, whilst in the Philippine insect the prothorax is marked with fine slender brown longitudinal vittæ, and the sides of the middle segments of the abdomen are black."

"Long. corp. circ. lin. 3. Expans. tegminum circ. lin. 6."

Hab. Ceylon (*S. Green, Oxford Mus.*).

M. guttigera seems to come near the species described by Walker as *Narnia rastrata*, which was taken by Wallace on the island of Flores (J. Linn. Soc., Zool. x, p. 193, 1867).

Mr. Staniforth Green sent Prof. Westwood some valuable bionomical notes relative to this species. "The larva resides in a tube, which is fixed on a twig or leaf-stalk of the Suriya tulip tree (*Adansonia digitata*) on the end of the branches. The perfect insect, no doubt, deposits its eggs in the same way that *Aprophora* * *spumaria* lays hers; but I have not yet noticed the growth of the tube. I had one under observation for about a week, and could, with the aid of a lens, see the movements of the larva inside. Its position in the tube was head downwards, and it seemed to be continually working its anus against and round about the inside of the tube near its orifice. At intervals a clear water-like fluid was discharged from its anus, which would escape from the tube drop by drop. I allowed some of this to fall upon a clear slip of glass, but it did not seem to congeal. The water seems to drop from the tube day and night, for I have seen it dropping before sunrise. Our insect has a life of some weeks in the larval state, and never shows itself outside of its tube until it is ready to assume its perfect state. The change occurs early in the morning, generally between six and seven o'clock, shortly after sunrise. First of all a quantity of little bubbles appear in the form of a knot at the mouth of the tube. Then the pupa comes out tail first, and takes up a position on the top of the tube (transversely, like the letter T) and in the middle of the

* *Ptyelus spumarius*, cf. p. 87.

bubbles. In about ten minutes it completely extricates itself from its old skin, and the curved horn of its thorax seems to uncurl . . . . The full-sized larva tubes are about half an inch long and about a line in diameter. They are about the thickness of writing-paper, of a dirty whitish colour, with the surface finely transversely wrinkled."

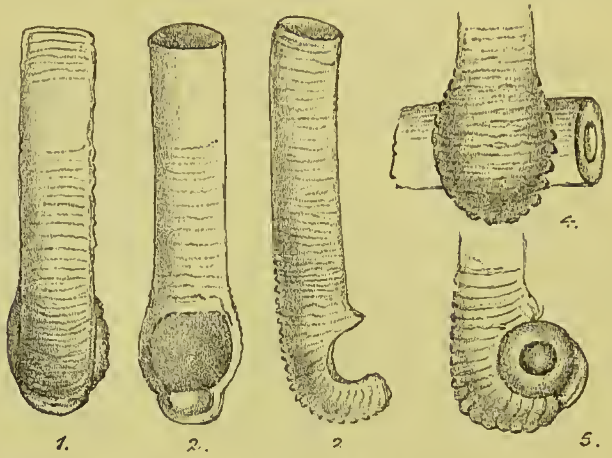

Fig. 66.—Larval tubes of *Machærota guttigera*.

1, 2, 3. The tube of the larva seen in different positions; magnified.
4, 5. Basal portion of the tube, showing the manner in which it is made to clasp the twig to which it is affixed. (After Westwood.)

Atkinson (J. A. S. B. lvii, p. 336) states that he has procured several specimens of these tubes (sp. ?) on the common Jujube (*Zizyphus*) in Calcutta. These were serpuliform and resembled the letter J without the transverse bar at the top; the foot, too, was curved over to embrace the twig on which they rested, and the length varied from half to two-thirds of an inch.

2224. **Machærota spangbergi**, *Sign. Ann. Soc. Ent. Fr., Bull.* 1879, p. xlviii; *Atkins. J. A. S. B.* liv, p. 22 (1885).

"Yellowish-brown; the median part of the face, the tip of the abdomen above, and the genital organs black; legs brownish, posterior tibiæ yellow with the tips black. Differs from *M. ensifera* in having the frontal grooves black, and the tegmina longer and less rounded at the tip."

"Length 4 millim. ♀."

Hab. Silhet (*fide Signoret*).

In the British Museum collection are two specimens in bad condition and labelled "India" which seem to agree fairly well with the above description; otherwise the species is unknown to me.

2225. **Machærota punctulata**, *Sign. Ann. Soc. Ent. Fr., Bull.* 1879, p. xlix; *Atkins. J. A. S. B.* liv, p. 23 (1885).

"Brownish-yellow, with the middle of the face, the abdomen above (except at the base), the legs (except the posterior tibiæ), and the frontal grooves, black; several transverse black spots on the pronotum, which is very finely punctured; metanotum brownish with two yellow, lateral, basal spots, the tip and the process blackish; tegmina elongate, five-celled, and above the marginal two to three others smaller, very distinct; the hyaline veins are spotted with several brown dots."

"Length 4 millim. ♀."

Hab. Silhet (*fide Signoret*).

I have not seen this species.

2226. **Machærota andamanensis**, sp. n.

Purplish-black; face concolorous; scutellum ferruginous at base, the posterior process ochraceous, an arcuate lateral fasciate spot on each side near base, its posterior margin, and the base of the posterior process greyish-white; posterior tibiæ (excluding base and apex) ochraceous; tegmina hyaline, the base and venation purplish-black. A slender elongate species; pronotum and scutellum finely granulose, the lateral pronotal angles obtusely subprominently angulate; posterior scutellar process long, strongly curved, slightly passing the tegminal apices; tegmina narrow, apically subacute.

Length incl. tegm. 6 millim.

Hab. Andaman Islands (*Rogers, Brit. Mus.*).

2227. **Machærota flavolineata**, sp. n.

Head black, margins of vertex, and face ochraceous; pronotum and scutellum dark purplish-brown, the first with a fine central carination and the lateral margins a little paler in hue; scutellum with a broad elongate spot at each basal angle, its posterior margin, the margins of the posterior groove, and a small spot at base of posterior process stramineous or ochraceous; posterior process castaneous, black at base and apex; sternum dark purplish-brown; abdomen piceous, ochraceous above near base; femora dark castaneous or piceous, tibiæ and tarsi ochraceous; tegmina pale shining ochraceous, subhyaline, purplish-brown at extreme base; pronotum and scutellum granulose, posterior process only moderately curved and not reaching tegminal apices; pronotum broad and robust, the lateral angles broadly subprominent.

Length incl. tegm. 7 millim.

Hab. Burma; Karen Hills (*Doherty*). Tenasserim; Myitta (*Doherty*).

2228. **Machærota planitiæ**, sp. n.

Body above pale tawny-brown; a spot at apex of vertex and three longitudinal angulated series of small dots on each side of pronotum, the outermost of which is marginal, black; a central carination and the posterior lateral margins to pronotum ochraceous; basal lateral margins and a central carination to scutellum ochraceous, its apical area and posterior spine castaneous, the latter with an elongate ochraceous spot at base; abdomen above pale ochraceous, laterally and apically black; face centrally longitudinally black, the lateral striations castaneous; body beneath and legs brownish-ochraceous, posterior tibiæ (excluding bases and apices) stramineous; tegmina subhyaline, talc-like, when closed the basal two-thirds reflecting the dark body beneath, most of the veins finely spotted with fuscous, the subapical margin more prominently fuscous; pronotum palely pilose, which partly hides the coarse punctures beneath; scutellar spine about reaching apex of tegmina, but longly passing apex of abdomen, elevated and strongly curved downward; the scutellum thickly punctate.

Length excl. tegm. 7 millim.

Hab. Bengal; Pusa, Rajputtee, Muzaffarpur (*Lefroy*). Bombay Province; Igatpuri (*Lefroy*).

Genus **MACHÆROPSIS**.

Machæropsis, *Melich. Hom. Faun. Ceylon*, p. 137 (1903).

Type, *M. valida*, Melich.

Distribution. Ceylon.

Head broad and short, about half the medial length of pronotum, the apex laterally and transversely incised for the reception of base of face; ocelli placed behind this restricted area and much nearer to each other than to eyes; face globose, transversely striate; pronotum convex, anteriorly reclined, very strongly angularly excavate before scutellum, anteriorly convexly rounded, anterior lateral margins short and slightly projecting; scutellum very large and long, centrally ovately foveate, beyond which it terminates in a prominent robust spine; tegmina talc-like, subhyaline, the veins very prominent and robust, the central margin arched from a little beyond base, three apical and three discoidal areas, claval area containing three distinct cells, costal area moderately broad and excavate; wings hyaline, anal area broad with a central vein not reaching its apex, its outer vein furcate at apex; legs moderate, posterior tibiæ with a central spine; abdomen short, robust, compressed.

2229. **Machæropsis valida**, *Melich. Hom. Faun. Ceylon*, p. 138, t. iv, f. 19, *a, b, c* (1903).

Body and legs ferruginous-brown, more or less shaded with

black; scutellum brownish-ochraceous; body beneath and legs a little paler than above; face with the striations and the posterior central area black; legs streaked with ferruginous-brown; tegmina talc-like, semihyaline, the veins and apical marginal area castaneous-brown, the veins and costal area spotted with black; wings pale

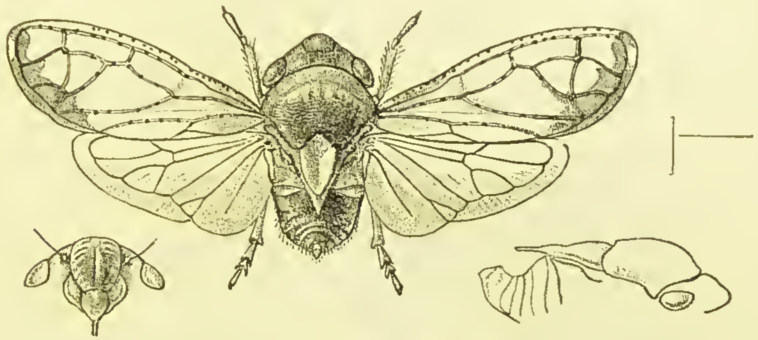

Fig. 67.—*Machæropsis valida.*

hyaline, the venation fuscous; head transversely wrinkled; pronotum transversely striate; foveate area of the scutellum faintly transversely striate.

Length excl. tegm. 6½ millim.; exp. tegm. 18 millim.

Hab. Ceylon; Maskeliya (*Green*).

Subfamily II. APHROPHORINÆ.

Aphrophorides, *Amy. & Serv. Hém.* p. 563 (1843).
Aphrophorida, *Stål, Hem. Afr.* iv, pp. 55 & 66 (1866).
Aphrophorina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 722.
Ptyelinæ, *Fowler, Biol. Centr.-Am., Rhynch. Hom.* ii, p. 190 (1897).
Cercopinæ, *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 380 (1906).

The Aphrophorinæ, like the Machærotinæ, have the anterior margin of the pronotum rounded or angulate, and the eyes moderately transverse, but differ by having the scutellum of ordinary size, flat, and triangular.

The Aphrophorinæ reach their maximum development in the Ethiopian Region, especially in the genus *Ptyelus*. Many of the Aphrophorinæ secrete a quantity of fluid and in the immature stages emit this fluid in the form of bubbles, and are thus known as "cuckoo-spits" or "frog-spits." These bubbles conceal the insect, and are considered by some as exhibiting a protective device. In Madagascar *Ptyelus goudoti* has been reported to exude so much fluid, that five or six dozen larvæ can about fill a quart vessel in an hour and a half. The Aphrophorinæ are almost universally distributed.

Synopsis of Genera.

A. Vertex of head broader than long, convexly rounded anteriorly.
  a. Head and pronotum not centrally longitudinally carinate.
    a. Ocelli about equally or farther removed from each other than from eyes.
      a'. Face more or less convexly produced.
        a². Clypeus slightly passing the apices of the anterior coxæ .... POOPHILUS, p. 86.
        b². Clypeus reaching but not extending beyond the apices of anterior coxæ . PTYELUS, p. 87.
      b'. Face more or less flattened, not convexly produced.................... CLOVIA, p. 93.
    b. Ocelli farther removed from eyes than from each other.
      a'. Posterior tibiæ with two spines ...... LEPYRONIA, p. 97.
      b'. Posterior tibiæ with one spine........ THOODZATA, p. 98.
  b. Head and pronotum distinctly centrally longitudinally carinate.
    a. Head and pronotum with a single central carination.......................... APHROPHORA, p. 99.
    b. Pronotum tricarinate.................. JEMBRANA, p. 104.
  c. Head only centrally carinate; pronotum non-carinate............................ SOUNAMA, p. 105.
B. Vertex of head as long or longer than broad, subangularly or elongately produced.
  a. Head not carinate. Ocelli nearer to each other than to eyes .... MANDESA, p. 106.
  b. Head centrally and laterally carinate.
    a. Ocelli as near eyes as to each other. Face sulcate .... DAHA, p. 107.
    b. Ocelli a little nearer to eyes than to each other. Face centrally carinate .... PHILAGRA, p. 107.

Genus POOPHILUS.

Poophilus, *Stål, Hem. Afr.* iv, p. 72 (1866).

Type *P. actuosus*, Stål, a South-African species.

Distribution. Ethiopian and Oriental Regions.

Head subangularly rounded, above flattened, a little narrower than the pronotum, anterior margin acute; face moderately convex, obsoletely transversely strigose, medially interrupted; apex of clypeus well produced, slightly passing the apices of the anterior coxæ; ocelli about equally far removed from eyes as from each other; pronotum sexangulate, the anterior lateral margins very short, anterior margin broadly rounded; tegmina apically narrowed, apex narrowed, commissural margin to apex of tegmen straight, behind clavus neither angulate nor rounded, costal margin rounded; wings shorter and broader than tegmina.

2230. **Poophilus costalis**, *Walk.* (Ptyelus) *List Hom.* iii, p. 707 (1851); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 493; *Atkins.* (Poophilus) *J. A. S. B.* liv, p. 114 (1885); *Melich.* (Ptyelus) *Hom. Faun. Ceylon*, p. 134 (1903).

Ptyelus concolor, *Walk. List Hom.* iii, p. 715 (1851).
Ptyelus dolosus, *Walk. List Hom. Suppl.* p. 189 (1858); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 493.
Ptyelus immutatus, *Walk. J. Linn. Soc., Zool.* i, p. 96 (1857).
Ptyelus rotundatus, *Sign. in Thoms. Arch. Ent.* ii, p. 332 (1858).
Ptyelus natalensis, *Stål, Öfv. Vet.-Ak. Förh.* 1855, p. 97; *id.* (Poophilus) *Hem. Afr.* iv, p. 74 (1866).

Pale tawny or tawny-brown, shortly, thickly, griseously pilose or pubescent; central apical margin to vertex with five very small black spots; face (more or less), disk of sternum, and the anterior and intermediate legs fuscous or piceous, apices of the femora

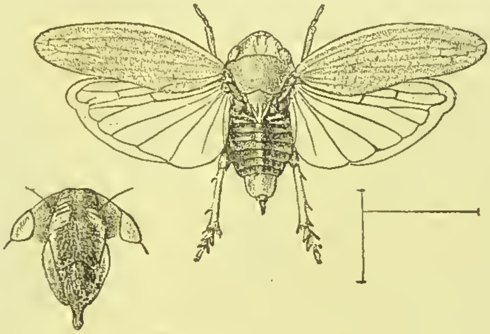

Fig. 68.—*Poophilus costalis.*

pale; tegmina with the costal margin paler, the paler coloration becoming broader on apical area.

Length 9 to 10 millim.

Hab. Dacca, Pusa (*Lefroy*); Bombay (*Leith & Dixon*); Surat (*Lefroy*); Calcutta (*Ind. Mus.*); Bangalore (*Cameron*); Dum Dum (*Paiva*); Darjiling (*Coll. Dist.*); Karachi (*Coll. Dist.*). Ceylon; Peradeniya, Nalanda, Anuradhapura (*fide Melichar*).—Singapore (*Wallace*). South and West Africa (*fide Stål*). Natal (*Brit. Mus.*). Nyasaland (*Coll. Dist.*).

Genus PTYELUS.

Ptyelus, *St. Farg. & Serv. Enc. Méth.* x, p. 608 (1825); *Amy. & Serv. Hém.* p. 566 (1843); *Matsum. Journ. Sappora, Agr. Coll.* p. 48 (1903).
Philænus, *Stål, Stett. ent. Zeit.* xxv, p. 66 (1864); *Fowler, Biol. Centr.-Am., Rhynch. Hom.* ii, p. 193 (1897).

Type, *P. spumarius*, Linn., a Palæarctic species.

Distribution. Almost universally distributed.

Head with the vertex much broader than long, convexly rounded anteriorly; face more or less convexly produced, transversely striate but medially interrupted; clypeus not passing the apices of anterior coxæ; neither vertex nor pronotum centrally carinate; pronotum large, convex at anterior margin, deeply subangularly sinuate before scutellum; tegmina coriaceous, about three times

as long as broad, costal margin convex, apices narrowed; wings about one-fourth shorter than tegmina; posterior tibiæ with two spines.

It is in the Ethiopian Region that this genus is represented by the largest and most beautiful species.

2231. **Ptyelus nebulosus**, *Fabr.* (Cercopis) *Syst. Ent.* iv, p. 50, 14 (1794); *id. Syst. Rhyng.* p. 94 (1803); *Stål* (Clovia), *Hem. Fabr.* ii, p. 16 (1869); *Atkins. J. A. S. B.* liv, p. 21 (1885).

Ptyelus quadridens, *Walk. List Hom.* iii, p. 711 (1851); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 493.

Ptyelus guttifer, *Walk. List Hom.* iii, p. 712 (1851); *Stål* (Clovia), *Hem. Afr.* iv, p. 75 (1866); *Atkins. J. A. S. B.* liv, p. 20 (1885).

Very pale yellowish-grey, distinctly and thickly pilose; two small black spots on anterior margin of head, visible both above and beneath; tegmina obscurely or darkly fuscous, with a very oblique anterior fascia, a somewhat large spot varied with fuscous at the commissure, an obliquely transverse spot beyond the middle of the costal margin, and a minute costal spot towards the apex, yellowish-grey; in some specimens the pronotum possesses two central, more or less abbreviated dark longitudinal lines and a lateral subtriangular spot, but in the specimens I have examined these are generally absent, the lateral margins of the scutellum are also sometimes fuscescent; the vertex is slightly shorter than the pronotum at middle, and is subangularly rounded in front; the pronotum has two small but distinct foveate spots near its anterior margin and is posteriorly angularly sinuate; the face is distinctly transversely striate on its lateral areas; tegmina about two and a half times as long as broad.

Length 9 to 10 millim.

Hab. North Bengal (*Miss Campbell, Brit. Mus.*); Jamalpur (*Lefroy*); Calcutta (*Brit. Mus.*); Bombay (*Dixon*); Igatpuri, Dacca (*Lefroy*); Bangalore (*Cameron, Ind. Mus.*); Madras (*Coll. Dist.*). Ceylon; Eppawela (*Green*).

2232. **Ptyelus affinis**, sp. n.

A larger species than *P. nebulosus*, with the vertex of head proportionally shorter to length of pronotum.

Dark fuscous-brown; thickly pilose; vertex, anterior marginal area of pronotum, sometimes more than half the area, face, two costal spots, a large irregular (both in shape and size) inner marginal fascia, and the apical area of the tegmina, ochraceous; body beneath and legs ochraceous; face with two black spots at anterior margin.

Var. *a.* Above nearly uniformly pale brownish, the pale ochraceous markings much more obscure, and the head and pronotum wholly of that colour with obscure longitudinal darker lines.

Var. *b.* Face with a central longitudinal piceous fascia.

Vertex of head distinctly shorter than central length of pronotum, which is posteriorly angularly sinuate; tegmina two and a half times as long as broad.

Length 10 to 12 millim.

Hab. Calcutta (*Coll. Dist.*); Bombay (*Dixon*); Nagpur, Munshiganj and Pusa (*Lefroy*). Burma; Maymyo (*Bingham*).

2233. **Ptyelus præfractus**, sp. n.

Head and pronotum pale ochraceous; basal area of pronotum, scutellum, and tegmina very dark castaneous-brown; an irregular transverse fascia crossing tegmen at middle and an oblique subapical costal spot greyish-white; body beneath and legs pale ochraceous; a marginal spot before each eye, disk of sternum between anterior and intermediate coxæ, and apices of tarsi dark castaneous: vertex of head with an enclosed rectangular space at anterior margin, the head much shorter than the pronotum; pronotum finely tomentose, with a transverse series of fine irregular foveations on its anterior area; tegmina finely tomentose; face broad, globose, finely transversely striate on each side, centrally longitudinally flattened and non-striate.

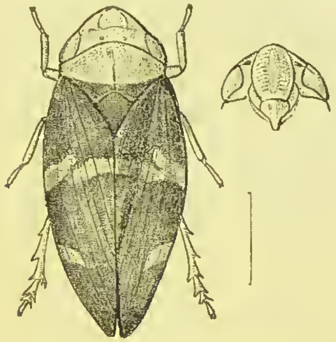

Fig. 69.—*Ptyelus præfractus.*

Var. Tegmina concolorous, without the greyish-white markings.

Length 11 millim.

Hab. Trivandrum (*Coll. Dist.*). Burma (*Coll. Dist.*).

2234. **Ptyelus hirsutus**, *Kirby* (Philænus), *J. Linn. Soc., Zool.* xxiv, p. 160 (1891); *Melich.* (Ptyelus) *Hom. Faun. Ceylon*, p. 134 (1903).

"Brownish-testaceous; front transversely striated, separated by a broad undivided medial space; two black spots, slightly showing above, just below the middle of the convex and somewhat flattened rim of the head; antennæ, tips of hind tibiæ, and tarsal claws black; tegmina pointed, with a pale oblique fascia on the costa before the tip, a black spot at the tip, and another in a pale ring, on the inner margin, at the extremity of the principal nervure; in one specimen a great part of the outer two-thirds of the tegmina is blackish on the costa, as far as the oblique band; it is intersected at about two-thirds of the length of the costa by a square pale patch on the costa, nearly connected with the point of a pale subtriangular mark in the middle of the tegmina; the hinder portion of this dark space is concave towards the middle of the tegmina, and runs narrowly towards the inner margin of

the basal side of the pale space; the whole insect is so thickly covered with short pale bristles as to entirely conceal the sculpture." (*Kirby.*)

I have thought it best to give Mr. Kirby's original description. The head is about as long as the medial length of the pronotum.

Length 8 to 9 millim.

Hab. Ceylon; Putlam, Colombo, Kandy (*Green*).—Malay Peninsula; Perak.

2235. **Ptyelus sulcatus**, sp. n.

Head, pronotum, and scutellum ochraceous-brown; body beneath and legs paler; tegmina fuscous-brown, a spot near base and an oblique central fascia extending from clavus to costal margin black; three pale ochraceous spots on costal margin, one before middle, another beyond middle, and the third small and subapical; tarsal claws black; body above somewhat thickly and palely pilose; eyes black; head shorter than medial length of pronotum and subangularly rounded in front; pronotum centrally longitudinally sulcate from anterior margin to disk, its posterior margin subangularly sinuate; tegmina two and a half times as long as broad.

A slender elongate species to be recognized by the sulcate pronotum.

Length 8 millim.

Hab. Nepal; Soondrijal.

2236. **Ptyelus majusculus**, sp. n.

Head, pronotum, scutellum, and tegmina castaneous-brown; abdomen above, body beneath and legs black or piceous; margin of abdominal segments ochraceous; wings pale fuliginous with some darker basal streaks, and the veins fuscous; vertex and pronotum very shortly finely pilose, the first about half of the medial length of the latter; scutellum with faint transverse striations; anterior margin of head beneath pale castaneous; face regularly transversely striated but medially interrupted; posterior tibiæ with two long spines.

Length excl. tegm. 12½; exp. tegm. 35 millim.

Hab. Assam; Margherita (*Coll. Dist.*).

This is the largest species from British India with which I am acquainted.

2237. **Ptyelus inconspicuus**, sp. n.

Vertex of head, pronotum and scutellum brownish ochraceous, very thickly, finely and shortly pilose; body beneath and legs black or piceous; abdomen above shining black, the abdominal segmental margins ochraceous; base of rostrum testaceous; tegmina ochreous-brown; wings slightly fuliginous, a little more so on apical areas, the veins fuscous; head beneath and sternum thickly, finely, palely pilose, face broadly centrally black, laterally

brownish, the transverse striations only distinct on the lateral areas, centrally broadly depressed; posterior tibiæ with two long spines; anal segment of abdomen above spotted with ochraceous.

Length excl. tegm. 10 millim.; exp. tegm. 26 millim.

Hab. Bombay (*Dixon*).

2238. **Ptyelus sexvittatus**, *Walk. List Hom.* iii, p. 715 (1851); *Atkins. J. A. S. B.* liv, p. 115 (1885).

Head, pronotum, and scutellum pale ochraceous, the head and pronotum with six longitudinal dark castaneous fasciæ, the lateral ones on head interrupted by the eyes, and the two central ones on pronotum continued on scutellum; posterior disk of face, clypeus, disk of prosternum, and abdomen beneath black; segmental incisures, coxæ and legs stramineous; a black spot on each side of face at inner margins of eyes, and the striations to anterior pale area also black; tegmina black, with three large greyish-white spots, one transverse near middle, the other two beyond it, one on inner and one on costal margin; in some specimens as the one above figured, there are two longitudinal basal ochraceous spots and the basal costal margin of the same colour.

Fig. 70.—*Ptyelus sexvittatus.*

The species varies in a tendency to melanism.

Length 6 to 7 millim.

Hab. "North India" (*Warwick, Brit. Mus.*). Bombay (*Leith & Dixon, Coll. Dist.*).

2239. **Ptyelus subfasciatus**, *Walk. List Hom.* iii, p. 724 (1851); *Atkins. J. A. S. B.* liv, p. 116 (1885).

Fig. 71.—*Ptyelus subfasciatus.*

Head ochraceous with obscure brownish longitudinal fasciæ; pronotum ochraceous, with six longitudinal fasciæ and the lateral margins umber-brown; scutellum with two longitudinal fasciæ; head and body beneath ochraceous; posterior disk of face, clypeus, and disk of prosternum black or piceous; abdomen above piceous-brown, the segmental margins and apex ochraceous; tegmina pale creamy-white, semi-opaque; claval area, two

irregular broad transverse fasciæ, one near base the other beyond middle, the latter narrowly connected with a broad apical margin, umber-brown; legs pale ochraceous.

Length 5 millim.

Hab. "N. India" (*Brit. Mus.*). Pusa, Shripur (*Lefroy*).

This appears to be a very variable species. In some specimens sent by Mr. Lefroy the dark fasciæ to the tegmina are very pale, and in some places almost obliterated.

2240. **Ptyelus declaratus**, *Melich. Hom. Faun. Ceylon*, p. 133 (1903).

"Body somewhat long, upper surface black with thick depressed grey hairs; vertex and anterior border of pronotum pale yellowish, tegmina with several pale yellow spots; on the vertex between the eyes a narrow rusty-yellow transverse fascia, within which lie the ocelli; on the face part of vertical upper plate an **X**-shaped rusty-yellow figure, on both sides of this plate a short longitudinal dash; face pale yellow, with brownish transverse furrows on each side and two black dots at tip; antennæ black; eyes somewhat long, oval, brown; in the front pale border of the pronotum a few indistinct rusty-yellow spots, posterior margin of pronotum, especially the hinder angles, usually yellowish-white; scutellum black, with two longitudinal stripes coalescing in front in an acute angle and the apex yellow; tegmina somewhat long, pointed behind, black, with pale yellow spots, and an usually indented oblique transverse spot in corium and clavus inclusive, before the middle on the claval suture, outside this a roundish spot frequently connected with a marginal spot on costal margin, and a similar oblique almost quadrate marginal spot beyond middle; on tip of clavus and adjoining parts of corium a group of several indistinct small spots, costal margin yellowish; wings fuliginous with dark veins; pectus pale yellow, middle of mesopectus black; abdomen and legs pale yellow, tips of spines and claws black." (*Melichar.*)

"Length 10 millim."

Hab. Ceylon; Peradeniya, Kandy, Negombo, Patalam, Matala (*fide Melichar*).

I have not seen this species.

2241. **Ptyelus pallidus**, *Melich. Hom. Faun. Ceylon*, p. 135 (1903).

"Pale stramineous, with thick silk-like depressed hairs; vertex as long as pronotum, rounded, slightly arched; face longer than broad; two little brownish spots visible in scutellum which are generally covered by the hind border of pronotum; a very small brown dot behind the tip of clavus; body beneath and legs pale yellowish; middle of pectus black; tips of spines to posterior tibiæ and all the claws, black.

"This species is like a pale variety of *P. spumarius*, but the shape is considerably smaller and the face longer and more rounded at tip." (*Melichar.*)

"Length 4½ millim."

Hab. Trichinopoly (*Mus. Hongrois*).

I have no knowledge of this species, and therefore reproduce Dr. Melichar's description.

Genus **CLOVIA**.

Clovia, *Stål, Hem. Afr.* iv, p. 75 (1866); *id. Öfv. Vet.-Ak. Förh.* 1870, p. 724; *Atkins. J. A. S. B.* liv, p. 20 (1885); *Melich. Hom. Faun. Ceylon.* p. 135 (1903).

Type, *C. bigoti*, Sign., a West-African species.

Distribution. Ethiopian, Oriental, and Australasian Regions.

Head as broad as the pronotum, rounded anteriorly or subangularly rounded, varying in length, flat above, anterior margin of the lobes of the vertex acute, not furrowed; face somewhat convex; clypeus moderately produced at apex, not extending beyond apices of the anterior coxæ; ocelli variable in position; pronotum sexangular, with the anterior lateral margins usually very short, parallel, or very slightly diverging backward; scutellum longer than broad; tegmina with the commissural margin beyond apex of clavus subangulated or a little rounded; posterior tibiæ bispinose. (*Stål.*)

2242. **Clovia conifer**, *Walk.* (Ptyelus) *List Hom.* iii, p. 711 (1851); *Atkins.* (Clovia) *J. A. S. B.* liv, p. 114 (1885).
Ptyelus simulans, *Walk. List Hom.* iii, p. 717 (1851).
Ptyelus frenulatus, *Stål, Öfv. Vet.-Ak. Förh.* 1854, p. 250; *id. Freg. Eug. Resa, Ins.* p. 286 (1859); *id. Öfv. Vet.-Ak. Förh.* 1862, p. 493; *id.* (Clovia) *tom. cit.* 1870, p. 726.

Flavescent, testaceous or fuscous, subsericeous; vertex and pronotum in some specimens with distinct darker longitudinal

Fig. 72.—*Clovia conifer.*

lines, in others these are obsolete; face castaneous with ochraceous margins; lateral areas of the sternum castaneous, with a

longitudinal ochraceous fascia; legs ochraceous, annulated with dark castaneous, in some specimens nearly wholly castaneous with the tarsi ochraceous; tegmina with a large median and larger apical, costal, hyaline or subhyaline spot; head between the eyes subtriangularly rounded, its length almost as long as centre of pronotum, which is posteriorly angularly sinuate; tegmina about two and a half times as long as broad.

Length 8 millim.

Hab. Sikhim; Mungphu. Nilgiri Hills (*Hampson*). Munshiganj, Eastern Bengal and Assam (*Lefroy*). Burma; Rangoon (*Bingham*), Ruby Mines (*Doherty*).—Malay Peninsula. Java. Philippines.

A variable species in colour and markings. When the tegmina are dark in hue the pale spots are very conspicuous, and are sometimes pale ochraceous and not hyaline; in pale-coloured specimens the spots are much more indistinct.

2243. **Clovia puncta,** *Walk.* (Ptyelus) *List Hom.* iii, p. 718 (1851); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 493; *Atkins.* (Clovia) *J. A. S. B.* liv, p. 115 (1885).
Ptyelus bipunctipennis, *Stål, Öfv. Vet.-Ak. Förh.* 1854, p. 250; *id.* (Clovia) *Hem. Afr.* iv, p. 75 (1866).

Pale tawny-brown, thickly, shortly and finely more palely pilose; face with the disk more or less piceous, its lateral margins and lateral margins of sternum continuously greyish; sternum with a piceous spot behind each anterior coxa; tegmina with a small black spot at posterior angle of inner margin; head a little shorter than the medial length of pronotum, anterior central area with three pale longitudinal lines; anterior margin of face pale ochraceous, with a black spot on each side; pronotum with some very indistinct darker longitudinal lines.

Length 6 millim.

Hab. Sikhim; Mungphu (*Atkinson*). Pusa, Muzaffarpur, Palamau, Nagpur (*Lefroy*). Bombay (*Dixon*). Surat, Poona (*Lefroy*). Calcutta.

A very distinct species by its almost uniform pale coloration above, with the black spot near the apex of inner margin to tegmina.

Atkinson (J. A. S. B. lv, p. 196, 1886) states that this species "includes apparently *Ptyelus orientalis*, Stål (Freg. Eug. Resa, Hem. p. 287, 1859) from China," which seems a well-founded suggestion.

2244. **Clovia bipunctata,** *Kirby, J. Linn. Soc., Zool.* xxiv, p. 163 (1891); *Melich. Hom. Faun. Ceylon,* p. 136 (1903).

Allied to *C. puncta* in colour and markings, but with the

apical area of the tegmina subhyaline and crossed by two irregularly bent oblique tawny fasciæ, tho subapical margin of the same colour, a black spot at posterior angle of inner margin; head as long as medial length of pronotum.

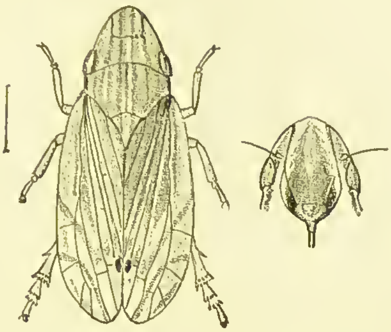

Fig. 73.—*Clovia bipunctata.*

To be distinguished from the preceding species by the greater length of the head and the different markings to the apical area of the tegmina.

Length 6 to 8 millim.

Hab. Bengal; Pusa (*Lefroy*). Calcutta (*Annandale*). Ceylon; Pundaluoya (*Green*).

2245. **Clovia lineaticollis,** *Motsch.* (Aphrophora) *Étud. Ent.* p. 110 (1859); *Melich.* (Clovia) *Hom. Faun. Ceylon,* p. 135 (1903).
Clovia perstrigata, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 162 (1891).

Above chestnut-brown, thickly shortly finely pilose, with fine slender longitudinal ochraceous fasciæ between the eyes and an outer one on each side interrupted by the eyes, continued posteriorly through the pronotum, scutellum, and basal area of the tegmina; tegmina with the base of costal margin, a large costal spot before middle, the veins, and two longitudinal fasciæ on apical area (one costal, the other central) ochraceous; a large oblique subapical pale ochraceous or subhyaline spot commencing on costal margin and joining the inner apical fascia; body beneath and legs pale ochraceous; lateral margins of face and prosternum, a large spot occupying central base of face and disk of prosternum, stripes (variable) to legs and tarsal claws, dark castaneous or piceous; head about as long as medial length of pronotum; tegmina about two and a half times as long as broad.

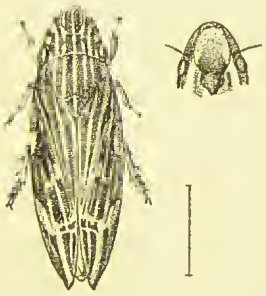

Fig. 74.
Clovia lineaticollis.

Length 10 millim.

Hab. Ceylon; Pundaluoya, Kandy (*Green*), Gamaduwa, Patipolla, Weligama (*fide Melichar*).

2246. **Clovia margheritæ,** sp. n.

Marked above generally as in *C. lineaticollis*, but darker and the longitudinal fasciæ more pronounced; tegmina with the outer

area very dark, basal costal margin not ochraceous; an inner longitudinal stripe on basal area, a spot on costal margin before middle, and two longitudinal fasciæ on apical area, the innermost curved, the outermost shorter and subcostal; face pale castaneous, a central fascia and its lateral areas black, the oblique striæ on castaneous areas also black; body beneath and legs ochraceous, prosternum and inconstant stripes to legs black or piceous; head about as long as medial length of pronotum, the posterior margin of which is more angularly sinuate than in *C. lineaticollis*, its anterior lateral margins also a little more angulate.

Length 10 millim.

Hab. Assam; Margherita (*Coll. Dist.*).

2247. **Clovia signata**, sp. n.

Pale ochraceous, with longitudinal black fasciæ. Head and pronotum with six longitudinal fasciæ; scutellum with two fasciæ; tegmina with two longitudinal fasciæ on claval area, the innermost broken, remaining tegminal area largely black; two spots on costal margin—one at and the other beyond middle—three longitudinal fasciæ on apical area, and two discal irregular spots near claval margin ochraceous; body beneath black; face (excluding base), two lateral spots on prosternum, posterior margins of abdominal segments, and the legs ochraceous, finely pilose; head about as long as medial length of pronotum; tegmina two and a half times as long as broad.

Length 9 millim.

Hab. Nilgiri Hills (*Hampson*).

2248. **Clovia andamanensis**, sp. n.

Ochraceous, with dark castaneous stripes and fasciæ. Head and pronotum with six longitudinal stripes; on the pronotum there are three intermediate lines, the central one continuous, the other two only extending half the distance from base; scutellum with two longitudinal fasciæ; tegmina with three longitudinal stripes in claval area, the central medially connected with the upper margin; remaining tegminal area dark castaneous or piceous; an oblique fascia before middle, some connected angulated fasciæ on disk, and the apical area ochraceous; on the latter three dark castaneous fasciæ, the largest and widest subcostal, the other two shortest and only slightly separated near inner margin; body beneath and legs ochraceous; anterior margins of face and lateral margins of head beneath and prosternum dark castaneous or piceous; head about as long as medial length of pronotum, posterior pronotal margin strongly angularly sinuate; tegmina a little less than two and a half times as long as broad.

Length 11 millim.

Hab. Andaman Islands (*De Roepstorff*, *Brit. Mus.*).

2249. **Clovia rœpstorffi**, sp. n.

Much smaller than *C. andamanensis*; pronotum without the three intermediate lines as in that species; tegmina black or piceous, with an inwardly-curved fascia commencing at inner base of clavus and terminating near middle of costal margin; a short discal longitudinal fascia, a curved fascia on apical area which commences on costal margin at about one-fourth from apex and also occupies the whole of apical margin, and narrow inner claval margin ochraceous; body beneath and legs ochraceous; anterior margin of face and lateral margins of head beneath black.

Length 9 millim.

Hab. Andaman Islands (*De Roepstorff*, *Brit. Mus.*).

2250. **Clovia humeralis**, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 162 (1891); *Melich. Hom. Faun. Ceylon*, p. 137 (1903).

"Head, pronotum, and scutellum dull testaceous; head and pronotum with two dull reddish stripes, rather wider behind, on each side of the median line; a shorter one, darker behind, within and behind each eye; head with the front reddish, below which is a blackish half-circle; otherwise testaceous beneath, as are also the sides of the thorax and abdomen and the legs beyond the middle of the femora; otherwise the under surface of the body is blackish; tegmina pointed in the middle, so that there is no proper hind margin, chestnut-brown, with a testaceous stripe on the basal third of the costa, broadest at the extremity; a slender, transverse, submarginal stripe at the extremity of the costa, preceded by another broad transverse stripe running from the costa just below the tip and ceasing in a point before reaching the inner margin; on the outer half of the inner margin there are some smaller and more irregular testaceous spots and streaks, which ru nup to the middle of the tegmina on the basal side." (*Kirby.*)

Length 10 millim.

Hab. Ceylon (*Mus. Berlin*); Pundaluoya (*Green*, *Brit. Mus.*).

Genus **LEPYRONIA**.

Lepyronia, *Amy. & Serv. Hém.* p. 567 (1843); *Stål, Hem. Afr.* iv, p. 66 (1866); *Fieb. Rev. Mag. Zool.* (3) iii, p. 382 (1875); *Ball, Rep. Iowa Acad. Sci.* 1898, p. 217; *Melich. Hom. Faun. Ceylon*, p. 132 (1903); *Matsum. Journ. Sapporo Agr'l. Coll.* ii, p. 23 (1903).

Type, *L. coleoptrata*, Linn., a Palæarctic species.

Distribution. Palæarctic, Nearctic, and Oriental Regions.

Face as long as pronotum at middle, rather more than half as long as breadth between eyes; vertex subangularly convexly anteriorly produced; ocelli less removed from each other than from eyes; antennæ inserted in deep grooves near the inner

anterior margins of eyes, the two basal joints cylindrical, the third globular, fixed in a hollow of the second joint and terminating in a long bristle; tegmina strongly convexly arched, with almost imperceptible veins; posterior tibiæ with two strong spines.

2251. **Lepyronia picta**, *Melich. Hom. Faun. Ceylon*, p. 132 (1903).

Fig. 75.
Lepyronia picta.

Head, pronotum, and scutellum pale yellowish; vertex with four curved transverse dark fasciæ, two on anterior and two near posterior margin; face with the margins and a crescentic fascia at posterior margin black; pronotum with the lateral margins and four longitudinal fasciæ black, the two central fasciæ continued on scutellum; legs piceous-brown, bases and apices of femora pale yellowish, posterior tarsi of the latter colour with the claws black; tegmina purplish-black; three spots in clavus, some discal spots, a large costal spot before middle, a large costal apical spot, and the apical veins greyish-white, the apical spot divided by a transverse dark line and posteriorly margined with a similar colour.

Length 5 to 5½ millim.

Hab. Ceylon (*Lewis, Coll. Dist.*).

Genus **THOODZATA**, nov.

Type, *T. princeps*, Dist.

Distribution. Tenasserim.

Vertex of head large, a little broader than long, convexly rounded anteriorly, laterally and transversely incised at apex as though for the reception of the face; ocelli placed close together on posterior disk, remote from eyes; face elongate, moderately globose, its disk elongately flattened, very slightly foveate, its lateral areas obliquely transversely ridged; eyes obliquely elongate; pronotum large, sexangular, convex, much broader than long, its anterior margin only very slightly rounded *; tegmina broad, ample; costal margin moderately convex, apex subangulate; clavus very large, longitudinally veined, apical area with six somewhat foveate cells; posterior tibiæ with one spine.

* Delineated a little too straight by the artist in the figure of the typical species.

2252. **Thoodzata princeps**, sp. n.

Very pale tawny-brown; vertex of head, pronotum, and scutellum almost concolorous; pronotum with a transverse series of small slightly darker spots or impressions a little before anterior margin; head beneath with a sublateral fascia behind eyes, anterior lateral margins and transverse striations to face, and broad lateral margins to clypeus piceous-brown; prosternum and abdomen beneath piceous-brown, the segmental margins pale

Fig. 76.—*Thoodzata princeps.*

ochraceous; legs stramineous, the tarsal claws piceous; abdomen above piceous, with the basal area ochraceous; tegmina pale tawny-brown, crossed near middle by a broad transverse fuscous-brown fascia inwardly margined by a creamy-white line; beyond this fascia the costal area is broadly creamy-white, containing four transverse linear brown spots; the apical cellular areas are fuscous-brown with the veins pale reddish; wings hyaline, the veins fuscous.

Length excl. tegm. 5½; exp. tegm. 14 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus APHROPHORA.

Aphrophora, *Germ. Mag. Ent.* iv, p. 48 (1831); *Amy. & Serv. Hém.* p. 563 (1843); *Stål, Hem. Afr.* iv, p. 67 (1866); *Fieb. Rev. Mag. Zool.* (3) iii, p. 382 (1875); *Atkins. J. A. S. B.* liv, p. 19 (1885); *Melich. Hom. Faun. Ceylon*, p. 131 (1903); *Matsum. Journ. Sapporo Agr'l. Coll.* ii, p. 26 (1903).

Type, *A. corticea*, Germ., a Palæarctic species.

Distribution. Probably almost universally distributed iu the Eastern Hemisphere.

Head almost as broad as the pronotum; vertex almost horizontal and somewhat flattened; anterior margin sometimes rounded, generally very obtusely angulated; clypeus of variable

length, reaching to or beyond the apices of the anterior coxæ; rostrum long, 2–3-jointed; ocelli two or sometimes absent, when present placed near the posterior margin of the vertex and more or less remote from the eyes; pronotum hexagonal or trapezoidal, with a longitudinal keel continued through the vertex; anterior margin rounded or obtusely angulated, posterior margin frequently deeply angulate-emarginate; scutellum triangular, shorter than the pronotum; tegmina slightly coriaceous, ovally elongate, acuminate; wings with the veins of the fourth apical cell with a furcate origin.

2253. **Aphrophora bisignata**, sp. n.

Vertex of head and more than anterior half of pronotum dull ochraceous, darkly punctate; posterior area of pronotum, scutellum, and tegmina umber-brown; two prominent transverse spots at apical margin of vertex, and a transverse fascia separating the ochraceous and brown pronotal areas, black; body beneath and legs black; anterior margin of head beneath and face, and the anterior and intermediate tibiæ ochraceous; posterior margin of face, clypeus, and rostrum pale castaneous; posterior tarsi ochraceous, with the claws black; vertex of head about half as long as pronotum, roundly subangularly produced; head, pronotum, and scutellum somewhat coarsely punctate, tegmina more thickly and finely punctate; tegmina broad, costal margin strongly rounded; face globose, the lateral areas transversely striate; rostrum reaching the posterior coxæ; pronotum and vertex traversed by a central longitudinal ridge.

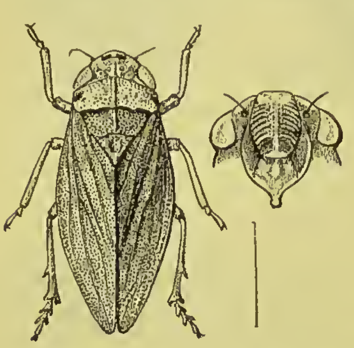

Fig. 77.—*Aphrophora bisignata.*

Length 13 millim.

Hab. Sikhim; Mungphu (*Atkinson Coll.*, *Brit. Mus.*).

2254. **Aphrophora burmanica**, sp. n.

Vertex of head and anterior two-thirds of pronotum ochraceous; posterior third of pronotum, scutellum, and tegmina dark castaneous; body beneath and legs piceous, anterior legs much paler; anterior margins of head beneath and face pale ochraceous; vertex of head about half the length of pronotum, coarsely punctate, the punctures concolorous; pronotum coarsely punctate, the punctures concolorous with the surface on which they appear, both pronotum and vertex traversed by a central longitudinal ridge; scutellum coarsely punctate; tegmina very thickly and finely punctate, the veins very prominent; face moderately globose, centrally flattened

and punctate, the lateral areas transversely striate; rostrum reaching the posterior coxæ.

Length 10 millim.

Hab. Burma; Ruby Mines (*Doherty*).

Smaller than the preceding species, *A. bisignata*, without the transverse black spots to vertex, no median black band to pronotum; face less convex and more centrally longitudinally flattened and punctate.

2255. **Aphrophora brachycephala**, sp. n.

Vertex of head and more than anterior half of pronotum ochraceous, coarsely punctate, the punctures sometimes largely black; two transverse black spots on central anterior margin of vertex; posterior area of pronotum and the scutellum purplish-black; tegmina brownish-ochraceous; head beneath and sternum brownish-ochraceous, abdomen sanguineous, legs black; vertex of head very broad and short, not more than one-third the length of pronotum, the punctures on both coarse, and both traversed by a somewhat fine central longitudinal ridge; scutellum coarsely punctate; tegmina very finely and thickly punctate; anterior margin of head beneath and face pale ochraceous; face globose, lateral areas strongly striate, anteriorly and centrally coarsely punctate, rostrum reaching the posterior coxæ.

Length 12 millim.

Hab. Kangra Valley, 4500 ft. (*Dudgeon*, *Coll. Dist.*).

Although allied in some colour markings to the two preceding species, to be at once separated by the broader and narrower head.

2256. **Aphrophora bimaculata**, sp. n.

Vertex of head piceous-brown, the central carination and a spot on each side of it at base ochraceous; face ochraceous, centrally longitudinally piceous, which area is anteriorly punctate, lateral areas very strongly, somewhat obliquely striate; pronotum ochraceous, coarsely darkly punctate, the central carination pale ochraceous; body beneath and legs testaceous; tegmina ochraceous, thickly darkly punctate, costal and apical areas and two central linear spots to clavus pale castaneous, two discal bright ochraceous spots, the more obscure before and the more prominent behind middle; vertex of head about one-third of the medial length of pronotum.

Length 12 millim.

Hab. Burma; Ruby Mines (*Doherty*).

2257. **Aphrophora nancyæ**, sp. n.

Above pale ochraceous, thickly darkly punctate; central anterior margin of vertex black; tegmina crossed by two oblique black fasciæ, one near base, the other near middle, and a large spot of

the same colour at apex; veins alternately ochraceous and black, except at apical area, where they are prominently and entirely black; body beneath and legs pale ochraceous; central area and striations to face, a subapical annulation to femora, basal and apical annulations to tibiæ, sternal spots, and disk of abdomen black; vertex of head about one-third the length of pronotum, centrally ridged, a cluster of black punctures on each side near eyes, and a similar central cluster; pronotum coarsely punctate, a transverse series of four pale subfoveate spots on anterior area, the two outer spots with black punctures, central ridge becoming obsolete behind middle; scutellum black, transversely wrinkled; tegmina very thickly and finely punctured.

Length 8–9½ millim.

Hab. N.W. India; Mussoorie (*Miss Nancy McKinnon*, *Coll. Dist.*).

2258. **Aphrophora moorei**, sp. n.

Head and pronotum ochraceous, the ocelli purplish-red; head beneath ochraceous, the anterior area of face black; body beneath and legs ochraceous, the anterior and intermediate legs annulated with castaneous, pro- and mesosterna more or less black; tegmina ochraceous, more or less suffused with black, these suffusions are principally on the veins, two spots on basal area and four on costal area, between the latter the colour is paler, which gives a further maculate appearance; head and pronotum thickly coarsely punctate, a strong central longitudinal ridge traversing both; vertex only about one-third the length of pronotum; face strong, transversely ridged, less so on the black anterior area, which is punctate; rostrum reaching the posterior coxæ.

Length 9½ millim.

Hab. "India" (*Coll. Dist.*).

This type-specimen was given me some years ago by the late veteran Indian lepidopterist, Mr. F. Moore, after whom I name the species. It bears no exact locality, but was from his general Indian collection.

2259. **Aphrophora cognata**, sp. n.

Vertex of head piceous, apex of central carination and a marginal spot on each side ochraceous; face ochraceous with the transverse striations finely piceous, head beneath on each side of face black, an ochraceous spot on each side of face at anterior margin; pronotum brownish-ochraceous, finely punctate, strongly centrally longitudinally carinate, on each side of the carination on anterior area a short longitudinal ridge; tegmina brownish-ochraceous with paler suffusions, thickly punctate, a curved black fascia occupying a little more than the costal area just before middle; body beneath and legs brownish-ochraceous, lateral margins of

sternum and abdomen broadly piceous; legs annulated with umber-brown; vertex of head about half the medial length of pronotum

Length 8 millim.

Hab. Nilgiri Hills (*Hampson, Coll. Dist.*).

2260. **Aphrophora sigillifera**, *Walk. List Hom.* iii, p. 700 (1851).
Aphrophora facialis, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 161 (1891); *Melich. Hom. Faun. Ceylon*, p. 131 (1903).

"Testaceous, but covered with large, deep, round, brown pits, which give the whole insect a brown appearance; head brown, with the central carina and a spot on each side behind pale, and some pale smooth spaces surrounded with brown in front of the

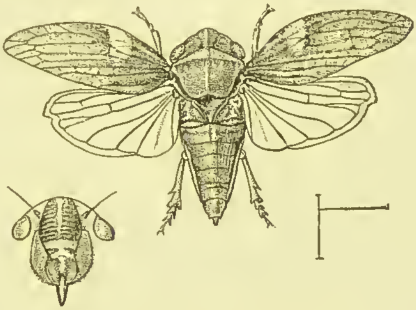

Fig. 78.—*Aphrophora sigillifera.*

pronotum, borders of scutellum also pale; an indistinct pale spot bordered with darker, sometimes visible in the middle of the costa of the tegmina; face with deep brown punctures in transverse rows, giving it the appearance of being transversely striated; it is more or less varied with black, sometimes entirely blackish, except at the lower extremity, but more often with two large blackish lateral spots (sometimes united) about the middle and smaller ones below; legs brown, indistinctly banded with paler." (*Kirby.*)

I give Mr. Kirby's description of his *A. facialis*, which describes the species. The pale costal spot to the tegmina is distinct in nearly all the specimens I have seen.

Length 7 to 7½ millim.

Hab. "North India" (*Brit. Mus.*). Bombay (*Dixon*). Dacca (*Lefroy*). Ceylon; Pundaluoya, Kandy (*Green*). Burma; Karen Hills (*Doherty*).

2261. **Aphrophora deserta**, *Melich. Hom. Faun. Ceylon*, p. 132 (1903).

"Similar to the preceding species in size and shape, thickly punctured, shining brown; tip of front, anterior half of pronotum, and an oblique transverse fascia in middle of tegmina yellowish-white; four transverse impressions in transverse series on pro-

notum and sides of pectus yellowish-white, remaining area of the under surface and the legs brown." (*Melichar.*)

Length 7 millim.

Hab. Ceylon (*Berlin Mus.*).

I have not seen this species.

Genus **JEMBRANA**, nov.

Type, *J. buprestioides*, Dist.

Distribution. S. India.

Head (including eyes) as wide as pronotum, anterior margin subangularly conical, centrally longitudinally carinate, face longitudinally globose, transversely striate; rostrum long, a little passing the posterior coxæ; pronotum anteriorly angularly produced between eyes, the anterior lateral margins short, a little curved outwardly, posterior margin angularly concave before scutellum, longitudinally tricarinate, the lateral carinations oblique; scutellum foveate; tegmina about two and a half times as long as broad, veins more or less longitudinal, apical areas short; legs of moderate length, posterior tibiæ with one spine.

2262. **Jembrana buprestioides**, sp. n.

Black; three small spots on anterior margin of vertex, broad anterior and lateral margins and two discal spots to pronotum, four large costal spots, two very small apical costal spots, three sutural and an oblique discal spot to tegmina, pale ochraceous; body beneath black; a spot at anterior margin of face, legs, and disks of sternum and abdomen pale ochraceous; legs annulated with black; body above very finely punctate, vertex about one-third the length of pronotum, both vertex and pronotum traversed

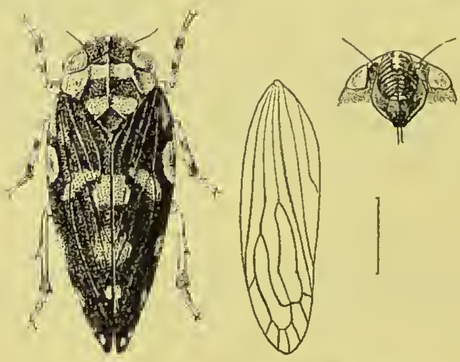

Fig. 79.—*Jembrana buprestioides.*

by a central longitudinal ridge, the latter also with an oblique longitudinal ridge near each lateral area; tegmina finely and thickly punctate; face transversely striate, basally and centrally coarsely punctate.

Length $7\frac{1}{2}$ to $8\frac{1}{2}$ millim.

Hab. Nilgiri Hills (*Hampson*). Naduvatum (*Lefroy*).

2263. **Jembrana montana**, sp. n.

Vertex of head with three small ochraceous spots on its anterior margin; head beneath and clypeus black; a central longitudinal linear spot on anterior area of face, lateral margins of face ochraceous; pronotum ochraceous, with its whole central area black, the latter with a small linear ochraceous spot near its anterior margin; scutellum black; tegmina ochraceous, a large black spot on apex of clavus, costal and apical areas black, enclosing four large costal ochraceous spots; body beneath and legs ochraceous, lateral areas of prosternum black, legs more or less annulated with black; abdominal apex black. General structure that of the preceding species, of which it may ultimately be proved to be a very aberrant variety, but at present, from the material before me, that view is untenable.

Length $8\frac{1}{2}$ millim.

Hab. Nilgiri Hills (*Hampson*).

2264. **Jembrana ornata**, sp. n.

Vertex of head and pronotum bright ferruginous-brown, with a central pale ochraceous carination, two small black spots on its anterior margin, each preceded by an ochraceous spot; pronotum with the anterior margin broadly stramineous; face and clypeus black, a central anterior stramineous spot to each; body beneath and legs ochraceous, lateral areas of prosternum black; legs annulated with castaneous; tegmina ferruginous-brown, apex of claval area and the outer tegminal area black or piceous, the latter irrorated with paler markings, of which the most prominent are three large costal spots; whole upper surface including tegmina thickly coarsely punctate; pronotum strongly tricarinate, the lateral carinations abbreviated; face strongly transversely striate.

Length $8\frac{1}{2}$ millim.

Hab. Utakamaud (*Brit. Mus.*).

Genus **SOUNAMA**, nov.

Type, *S. imprimis*, Dist.

Distribution. Nilgiri Hills.

Vertex of head somewhat angularly convex and reflected, with a slight central longitudinal ridge; ocelli placed close together on posterior disk, remote from eyes; face broadly longitudinally sulcate, lateral areas finely transversely ridged; posterior tibiæ with one strong spine; pronotum sexangular, broad, convex, not centrally longitudinally ridged, nearly twice as broad as long; tegmina attenuated posteriorly, apical area with two cells divided by prominent veins.

This genus is somewhat intermediate between *Aphrophora* and *Ptyelus*: in the first both the vertex and pronotum is centrally longitudinally carinate, while in the latter neither are; in *Sounama* the vertex only is ridged. From both those genera it is also separated by the longitudinally sulcate face.

2265. **Sounama imprimis**, sp. n.

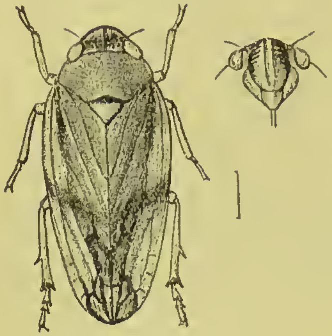

Fig. 80.—*Sounama imprimis.*

Ochraceous, strongly pilose; disk of vertex piceous; basal margin of scutellum black; tegmina with a longitudinal basal streak, a transverse oblique fascia beyond middle, and some subapical and apical fasciæ enclosing cellular areas, black; legs pale ochraceous; lateral margins of head between face and eyes black; prosternum black; abdomen beneath black, the segmental margins and a central line ochraceous; anal segment ochraceous.

Length 5 millim.

Hab. Nilgiri Hills (*Hampson*).

Genus **MANDESA**, nov.

Type, *M. amplificata*, Dist.

Distribution. Tenasserim.

Head about as long as medial length of pronotum, subtriangularly produced, its lateral margins oblique, lateral apices of the lobes acute, at apex inwardly laterally and transversely impressed as though for the reception of the upper area of face; ocelli placed close together near base; face elongate, its lateral areas oblique; rostrum short, not extending beyond intermediate coxæ; pronotum angularly rounded anteriorly, the anterior margin straight behind ocelli, and then subobliquely deflected on each side behind eyes, the lateral margins oblique, angularly concave before scutellum, which is about as long as broad at base; tegmina ample, costal margin convexly rounded, a discal oblique transverse broadly raised vein-like ridge beyond middle, and an irregular series of transverse veins before apex; posterior tibiæ with two spines.

2266. **Mandesa amplificata.**

Fig. 81.—*Mandesa amplificata.*

Pale ochraceous; a central longitudinal fascia to face, lateral margins of head beneath, and the tarsal claws black; tegmina with a black spot near end of clavus and a similar spot at apical margin; wings fuliginous; structural characters as in generic diagnosis.

Length 10 millim.

Hab. Tenasserim: Myitta (*Doherty*).

Genus DAHA, nov.

Type, *D. arietaria*, Dist.
Distribution. Tenasserim.

Head about as long as medial length of pronotum, robustly subtriangular, very strongly tricarinate, the carinations obsoletely reaching base, before which they are divided by a transverse incised line, the apex somewhat broad and subtruncate; ocelli situate near base and about as far apart from eyes as from each other; face elongate, bilobed, centrally longitudinally broadly sulcated; rostrum short, scarcely reaching the intermediate coxæ; pronotum anteriorly strongly convex, lateral margins oblique, strongly angularly concave before scutellum, which is centrally moderately depressed and foveate; tegmina with the costal margin convex, the apices somewhat broadly rounded, veins longitudinal, a few transverse veins at apex; legs moderate, posterior tibiæ with two spines.

2267. **Daha arietaria**, sp. n.

Dull black; legs ochraceous, tibiæ a little darker; tegmina with a large sub-oblong spot near base of clavus and a small spot on posterior disc, stramineous.

Var. Tegmina without the large pale spots on claval area.

Head very finely punctate between the longitudinal ridges, which are strongly pronounced, the lateral ridges meeting anteriorly; the eyes are ochraceous, spotted with black; pronotum and scutellum very finely transversely rugulose; tegmina minutely thickly punctate.

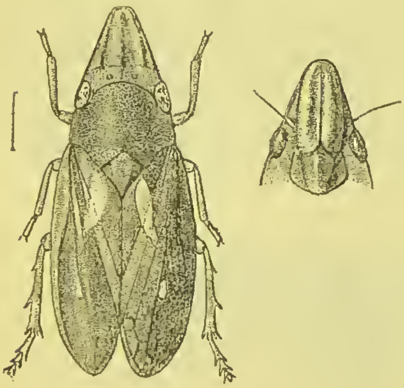

Fig. 82.—*Daha arietaria.*

Length $6\frac{1}{2}$ millim.
Hab. Tenasserim; Myitta (*Doherty*).

Genus PHILAGRA.

Chalepus, *Walk. List Hom.* iii, p. 731 (1851), nom. præocc.
Philagra, *Stål, Tr. E. S.* (3) i, p. 593 (1862); *Matsum. Journ. Sapporo Agr'l. Coll.* ii, p. 21 (1903).

Type, *P. hastata*, Walk., from an unknown habitat.
Distribution. Oriental, Malayan, and Australasian Regions; China and Japan.

Head narrowed and strongly prolonged in front of eyes, centrally and laterally carinate above, longer than or as long as pronotum; ocelli a little nearer to eyes than to each other, more or less upwardly directed; face more or less transversely striated, centrally longitudinally carinate; clypeus short, posteriorly rounded; rostrum almost reaching the posterior coxæ; posterior tibiæ armed with two spines; pronotum sexangular, anteriorly convexly rounded, posteriorly angularly emarginate before scutellum; tegmina apically subacute, their costal margins strongly convex, costal and radial areas broad, the latter dilated near base.

The strongly produced head is the principal character of this genus. I give Walker's *hastatus* as type of the genus, because *Chalepus* antedates *Philagra* but sinks through the name being preoccupied.

a. *Head longer than pronotum.*

2268. **Philagra fusiformis**, *Walk.* (Cyrene) *List Hom., Suppl.* p. 47 (1858); *Atkins. J. A. S. B.* lv, p. 48 (1886); *Melich. Wien. Ent. Zeit.* xx, p. 177 (1901).
Chalepus aconophorides, *Walk. List Hom., Suppl.* p. 192 (1858); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 494.

Body and legs ochraceous; head, pronotum, and scutellum thickly, shortly, palely pilose; abdomen shining ochraceous; tegmina ochraceous with pale irregular scattered fuscous markings; wings subhyaline with a pale ochraceous tint; head above strongly tricarinate, about half as long again as pronotum, its apex slightly upwardly recurved; face strongly centrally carinate,

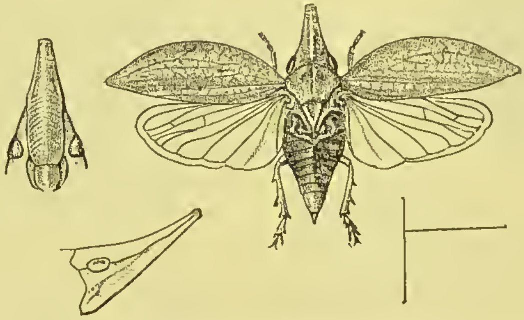

Fig. 83.—*Philagra fusiformis.*

its posterior area transversely striate; rostrum almost reaching the posterior coxæ.

Var. Darker and more brownish ochraceous in hue, the fuscous markings to the tegmina darker and more numerous.

Length excl. tegm. 10 to 14; exp. tegm. 18 to 27 millim.

Hab. Sikhim (*Indian Mus.*). Assam; Margherita (*Coll. Dist.*). Burma; Ruby Mines (*Doherty*).—North China (*Brit. Mus.*).

b. *Head as long as pronotum.*

2269. **Philagra dissimilis**, sp. n.

Piceous-brown, somewhat thickly ochraceously tomentose; apex of scutellum ochraceous; face, clypeus, and legs darker piceous; head above about as long as pronotum, its apex much less attenuated than in the preceding species and somewhat broadly rounded, much more faintly centrally and laterally carinate, and finely transversely wrinkled, its extreme lateral margins brownish-ochraceous; face transversely striate, more strongly so on its anterior area, obsoletely centrally carinate, but clypeus strongly so; spines to posterior tibiæ long and robust.

Length incl. tegm. 13 millim.

Hab. Nilgiri Hills (*Hampson, Coll. Dist.*).

Species doubtfully recorded from British India.

Hindola viridicans, *Stål* (Ptyelus), *Öfv. Vet.-Ak. Förh.* 1854, p. 251; *id. Freg. Eug. Resa, Hem.* p. 286 (1859); *Spångb.* (Carystus) *Öfv. Vet.-Ak. Förh.* 1877, no. 9, p. 13; *Atkins. J. A. S. B.* liv, p. 21 (1885); *Kirk.* (Hindola) *Entomologist*, 1900, p. 243.

This is a Malayan species recorded from Java, Singapore, and Malacca. Atkinson (*supra*) has with doubt given Tenasserim as a habitat. It was not received in any of the collections made for me by Mr. Doherty in Tenasserim (and all his captures there were sent to me), and I therefore do not consider myself justified in including the genus and species in this enumeration.

Subfamily III. CERCOPINÆ.

Cercopida, *Stål, Hem. Afr.* iv, p. 55 (1866).
Cercopina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 718.
Cercopinæ, *Fowl. Biol. Centr.-Am., Rhynch. Hom.* ii, p. 174 (1897).
Rhinaulacinæ, *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 380 (1906).

This subfamily is structurally to be differentiated by having the anterior margin of the pronotum straight, and the eyes equally as long as broad. They also possess a most distinctive superficial, or apparent, appearance which renders their identification a matter of little difficulty.

It is in the Oriental and Malayan Regions that the *Cercopinæ* reach their maximum in size and colour development, and this in the very extensive genera *Cosmoscarta* and *Phymatostetha*. These beautiful insects were largely described by Walker in his Lists of Homoptera, 1851 and 1858; which descriptions were much revised and corrected by Stål, who visited the British Museum in 1862. Butler (1874) published a Revision of the genera *Cosmoscarta* and *Phymatostetha*, describing new species. Since

that time the Eastern *Cercopinæ*, and especially these genera, have been more or less studied by Atkinson, Breddin, Jacobi, and the present writer.

Synopsis of Genera.

A. Anterior legs elongate; anterior femora longly passing the lateral margins of the body.
  a. Anterior femora distinctly longer than the intermediate femora.
    a. Head not elongately produced in front of eyes.
      a'. Face elongate, compressed, about twice as long as broad; tegmina moderately broad, prominently rounded at about one-third from base, narrowing towards apices, apical areas reticulately veined . RHINASTRIA, [p. 110.
      b'. Face somewhat prominent, less than twice as long as broad; tegmina narrow, elongate, oblong, moderately ampliated towards apices .... CALLITETTIX, [p. 111.
    b. Head in ♂ longly acutely produced in front of eyes .... ABIDAMA, p. 114.
  b. Anterior femora not or only slightly longer than the intermediate femora .... CALOSCARTA, [p. 115.
B. Anterior legs of moderate length, the anterior femora only slightly passing the lateral margins of the body, and only slightly or not longer than the intermediate femora.
  a'. Face with a longitudinal furrow ...... EOSCARTA, p. 115.
  b'. Face without a furrow.
    a^2. Pronotum with the posterior lateral margins straight and sinuate, its greatest breadth little more than half its length .... PHYMATOSTETHA, [p. 118.
    b^2. Pronotum with the posterior lateral margins not sinuate, its greatest breadth about two-thirds of its length COSMOSCARTA, [p. 128.

Genus RHINASTRIA.

Rhinastria, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 159 (1891); *Melich. Hom. Faun. Ceylon*, p. 130 (1903).

Type, *R. bicolor*, Kirby.

Distribution. Ceylon.

Vertex of head a little pointed in front, posterior margin ridged, strongly obliquely foveate on each side, transversely impressed in front of ocelli, which are nearer to each other than to eyes; face compressed, anteriorly convex, posterior angle broadly acute; anterior femora distinctly longer than intermediate femora; pronotum sexangular, about twice as long as vertex, transversely impressed before middle, lateral margins nearly straight, a little reflexed; scutellum about as broad as long; tegmina prominently rounded at about one-third from base, narrowing towards apices, claval area broad, apical area reticulately veined.

2270. **Rhinastria bicolor,** *Kirby, J. Linn. Soc., Zool.* xxiv, p. 160, t. vi, f. 12 (1891); *Melich. Hom. Faun. Ceylon,* p. 130, t. iv, f. 4 *a* (1903).

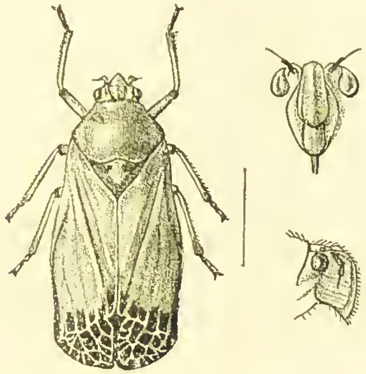

Fig. 84.—*Rhinastria bicolor.*

Shining luteous; anterior claval margin, apical area (excluding veins), eyes, apices of femora, anterior tibiæ, apices of intermediate and posterior tibiæ, and the tarsi black; pronotum, scutellum, and the tegmina very thickly and finely punctate, reticulate veins to apical areas raised and transversely rugulose; pronotum with two moderate callosities in front of the transverse impression; scutellum sometimes with a black spot near each basal angle; face finely transversely striate.

Length incl. tegm. 10 to 12 millim.

Hab. Ceylon; Aniswella (*Green, Brit. Mus.*), Uvá, Badda-Eliya (*fide Melichar*).

Genus CALLITETTIX.

Callitettix, *Stål* (part.), *Öfv. Vet.-Ak. Förh.* 1865, p. 152; *id. Hem. Afr.* iv, p. 55 (1866); *Melich. Hom. Faun. Ceylon,* p. 129 (1903).

Type, *C. braconoides,* Walk.

Distribution. British India; Malay Peninsula; China.

Body elongate; vertex of head about as broad as long, transversely depressed before apex which is broadly rounded; ocelli placed rather close together on posterior disk, a little nearer to each other than to eyes; face compressed, prominent, the posterior angle obtusely acute, the anterior angle rounded; legs elongate, the anterior femora distinctly longer than the intermediate femora; pronotum elongate, much longer than head, the lateral margins straight, sexangulate, foveate on each side near anterior margin which is straight; scutellum a little longer than broad; tegmina elongate, oblong, moderately ampliated towards apices; posterior tibiæ armed with one spine.

a. *Abdomen above red or luteous.*

2271. **Callitettix braconoides,** *Walk.* (Sphenorhina) *List Hom., Suppl.* p. 185 (1858).

Callitettix melanochra, *Stål, Öfv. Vet.-Ak. Förh.* 1865, p. 152; *Atkins. J. A. S. B.* liv, p. 17 (1885).

Luteous or pale sanguineous; apical third of tegmina, apices of anterior femora, anterior and intermediate tibiæ (excluding bases), apices of posterior tibiæ, and the tarsi black; wings vinaceous; above very thickly and finely punctate; face transversely striate, centrally longitudinally ridged.

Fig. 85.—*Callitettix braconoides.*

Length excl. tegm. 8; exp. tegm. 20 to 24 millim.

Hab. Sikhim (*fide Atkinson*). Burma (*Brit. Mus.*); Bhamo (*Coll. Dist.*).

The type of Walker's *braconoides* is here figured.

2272. **Callitettix contigua,** *Walk.* (Sphenorhina) *List Hom.* iii, p. 695 (1851); *Atkins. J. A. S. B.* liv, p. 114 (1885).
Sphenorhina intermedia, *Walk. List Hom.* iii, p. 695 (1851); *Atkins. J. A. S. B.* liv, p. 114 (1885).

Head, pronotum, scutellum, face, and sternum black; abdomen above sanguineous, anal segment and legs fuscous-brown; abdomen beneath fuscous-brown, the base sanguineous; tegmina very dark umber-brown, a transverse fascia formed by two spots a little beyond base ochraceous, their margins sanguineous; a large spot at about one-third from apex, commencing on costal margin and not quite reaching middle of tegmina, and a small spot beneath it near inner margin, testaceous; wings pale hyaline.

Var. *intermedia*, Walk.—Tegmina with the two basal spots more continuous and pale ochraceous, the second smaller subapical testaceous spot obliterated.

Length excl. tegm. 7; exp. tegm. 17 to 19 millim.

Hab. "N. India" (*Brit. Mus.*); Simla (*Brit. Mus.*); Mussoorie (*Lefroy*).

2273. **Callitettix proxima,** *Walk.* (Sphenorhina) *List Hom.* iii, p. 695 (1851); *Atkins. J. A. S. B.* liv, p. 114 (1885).

Head, pronotum, scutellum, body beneath, and legs black; base of abdomen beneath, posterior coxæ, and abdomen above (excluding apex) ochraceous; tegmina dark umber-brown, a transverse fascia a little beyond base, and a broken narrow fascia near apical area, stramineous; wings pale hyaline; posterior tibiæ with a strong spine beyond middle.

Length excl. tegm. 7; exp. tegm. 14 millim.

Hab. "N. India" (*Brit. Mus.*).

This may ultimately prove to be but another variety of *C. contigua*; however, I know only the unique type, and therefore have no knowledge as to its constancy in specific character.

b. *Abdomen above black.*

2274. **Callitettix versicolor,** *Fabr.* (Cicada) *Ent. Syst.* iv, p. 50 (1794); *id. Syst. Rhyng.* p. 69 (1803); *Stål* (Callitettix), *Hem. Fabr.* ii, p. 11 (1869); *Atkins. J. A. S. B.* liv, p. 18 (1885).
Var. Sphenorhina approximans, *Walk. List Hom. Suppl.* p. 185 (1858); *Atkins. J. A. S. B.* liv, p. 114 (1885).

Shining black, finely fuscously pubescent; tegmina with a spot before the middle of the clavus, and a subtransverse spot between the middle of upper claval margin and the costal margin, white;

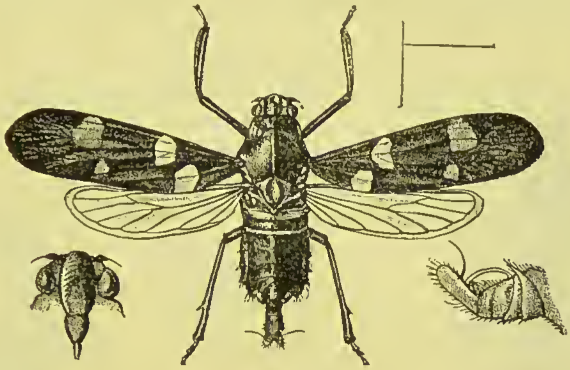

Fig. 86.—*Callitettix versicolor.*

two spots beyond the middle of tegmen, the external large and transverse, the internal small, and apex of clavus sanguineous; wings dull hyaline, the veins and apical margin infuscate.

Var. *a.* Basal spots to tegmina luteous, not white.

Var. *b.* Basal spots to tegmina obliterated, sanguineous apical spots present.

Var. *c.* Basal white spots to tegmina very small, only one sanguineous apical spot (*approximans*, Walk.).

Var. *d.* All the spots present but luteous, none sanguineous.

Length excl. tegm. 9; exp. tegm. 20 to 22 millim.

Hab. Kashmir. Mussoorie (*Brunetti*). Assam; Sikhim; Bombay (*Leith and Dixon*). Tindharia. Burma; Thayetmyo (*Watson*), Bhamo, Shwègu Myo (*Fea*). Arakan (*Ind. Mus.*). — China Malay Peninsula; Perak.

Genus ABIDAMA, nov.

Type, *A. producta*, Walk.

Distribution. British India.

Head somewhat longly and acutely produced in front of eyes in ♂, in ♀ not produced, resembling *Callitettix*, where the vertex is transversely impressed, and between this impression and base longitudinally ridged; face compressed, angulated anteriorly and then strongly continued to clypeus, longitudinally centrally acutely ridged; rostrum short, not passing intermediate coxæ; anterior femora distinctly longer than intermediate femora as in *Callitettix*, with which genus it otherwise agrees.

2275. **Abidama producta**, *Walk.* (Sphenorhina) *List Hom.* iii, p. 696 (1851); *Stål* (Callitettix), *Öfv. Vet.-Ak. Förh.* 1865, p. 153; *Atkins. J. A. S. B.* liv, p. 18 (1885).

Head, pronotum, and scutellum black, finely greyishly tomentose; apex of scutellum and the tegmina rufo-testaceous, the apical margin of the latter rather broadly black; body beneath black, metasternum and legs dark sanguineous, apices of tibiæ and the tarsi piceous; wings dull hyaline with the veins darker; face laterally almost longitudinally obliquely striate.

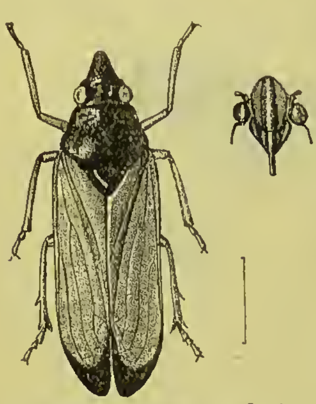

Fig. 87.—*Abidama producta*, ♂.

Length incl. tegm., ♂ & ♀, 7 to 9 millim.

Hab. Nepal; Nagarkote and Soondrijal (*Ind. Mus.*). Assam; Margherita (*Doherty*), Khási Hills. Bengal; Shripur, Pusa (*Lefroy*). Burma; Bhamo (*Fea*).

Stål redescribed the species under Walker's name without any reference to the original description.

2276. **Abidama rufula**, sp. n.

Head, pronotum, and scutellum black, greyishly tomentose; apex of scutellum, tegmina, body beneath and legs pale testaceous; head beneath, pro- and mesosterna black; apices of tegmina pale purplish-red; body above and tegmina thickly and finely punctate; face anteriorly subacutely prominent; tarsi more or less piceous.

Length incl. tegm. 8 millim.

Hab. Bengal; Shripur, Pusa (*Lefroy*). Burma; Bhamo (*Coll. Dist.*).

In some specimens recently sent to me by Mr. H. M. Lefroy, the tegmina are more piceous than testaceous.

Genus **CALOSCARTA.**

Caloscarta, *Bredd. Soc. Ent.* xviii, p. 99 (1903).

Type, *C. capitata*, Stål.

Distribution. British India and Malaya.

Breddin, who founded this genus, writes :—“ Differs from *Callitettix* as follows :—first joint of antennæ longer than the second; face laterally compressed with a continuous sharp middle keel; anterior femora not, or only slightly, longer than the intermediate femora; costal margin of tegmina at a short distance from base concavely rounded, not touching the raised wrinkled first section of the tegmina; last joint of rostrum distinctly shorter than the penultimate one; anterior tibiæ slightly widened towards the apex.”

2277. **Caloscarta capitata,** *Stål* (Callitettix), *Öfv. Vet.-Ak. Förh.* 1865, p. 153; *Melich. Hom. Faun. Ceylon,* p. 129 (1903).
Phymatostetha insignis, *Dist. Trans. Ent. Soc.* 1878, p. 322.

Black; head, anterior marginal area to pronotum, scutellum, about basal fourth of tegmina, sternum and legs, sanguineous; a black spot behind each anterior coxa; abdomen beneath black; the black tegmina are distinctly darker behind scutellum to a little beyond middle; tarsi black, base of posterior tarsi sanguineous; above finely pilose; pronotum finely granulose; tegmina very finely and thickly punctate.

Length 6 to 7 millim.

Hab. Bombay (*Dixon*). Ceylon; Pundaluoya, Putlam (*Green, Brit. Mus.*), Peradeniya, Negombo, Weligama (*fide Melichar*).

Fig. 88.—*Caloscarta capitata.*

A very variable species; the colour of the pronotum varies from red to black, and the red at the base of the tegmina is sometimes almost obliterated. All the specimens I have received from Bombay are of the melanic form, and are also the smaller sized specimens.

Genus **EOSCARTA.**

Eoscarta, *Bredd. Soc. Ent.* xvii, p. 58 (1902).

Type, *E. eos*, Bredd., from Malacca.

Distribution. British India and Malaya.

Vertex of head flat, forwardly reclined; ocelli about as far apart from eyes as from each other; face strongly laterally

compressed, behind the middle obliquely directed downwards, before the middle with a furrowed longitudinal impression, basal margin of pronotum truncate or very slightly sinuate; tegmina smooth, apical veins weakest, apical areas not or sometimes excavate; wings without triangular costal appendage; hind tibiæ with one spine. The longitudinally sulcate face is a typical character for this genus; the body is elongate in form, and the pronotum is not laterally dilated.

2278. **Eoscarta semirosea**, *Walk.* (Cercopis) *Journ. Linn. Soc., Zool.* i, p. 165 (1857); *Bredd.* (Eoscarta) *Deutsche Ent. Zeitschr.* 1903, p. 100; *Jacobi, Mt. Mus. Berlin,* iii, p. 22 (1905).

Body and legs ochraceous; tegmina pale semihyaline, base, claval area, and sometimes the costal area, ochraceous, apical area rosaceous with a few small fuscous spots in the cellular areas; face broadly longitudinally sulcate before middle, transversely striate on its compressed sides; shortly and finely pilose above, legs more strongly pilose; tarsal claws black.

Fig. 89.—*Eoscarta semirosea.*

Length excl. tegm. 7; exp. tegm. 18 millim.

Hab. Assam; Margherita (*Doherty*).—Malay Peninsula; Perak (*Doherty*). Borneo.

2279. **Eoscarta borealis**, *Dist.* (Cosmoscarta) *Tr. E. S.* 1878, p. 321; *Atkins. J. A. S. B.* liv, p. 12 (1885); *Bredd.* (Eoscarta) *Deutsche Ent. Zeitschr.* 1903, p. 100.

Head and pronotum pale luteous, antennæ black; ocelli black; eyes luteous, more or less suffused with black; head beneath, sternum and legs pale luteous, anterior and intermediate tibiæ, apices of posterior tibiæ, and the tarsi black; abdomen beneath and tegmina roseate; shortly and finely greyishly pilose; face compressed, before middle broadly longitudinally sulcate, finely transversely striate on the flattened lateral areas.

Var. Head, pronotum, and tegmina dark roseate red, concolorous; all the luteous coloration to body beneath and legs replaced by dark roseate red.

Length excl. tegm. 6; exp. tegm. 16 to 17 millim.

Hab. Assam; Khási Hills (*Chennell*), Margherita (*Doherty*). Tenasserim; Myitta (*Doherty*).—W. Yunan (*Anderson*).

The Tenasserim specimens belong to the dark variety, which I cannot specifically separate from the typical form.

2280. **Eoscarta nilgiriensis,** *Dist.* (Cosmoscarta) *Tr. E. S.* 1900, p. 681.

Head, pronotum, and scutellum dark castaneous; abdomen, body beneath, and legs dull reddish; tegmina pale castaneous; wings pale fuliginous; head, pronotum, scutellum, and tegmina distinctly finely densely pilose; pronotum foveate on each side behind anterior margin, its lateral margins somewhat laminate but scarcely reflexed, its surface finely densely punctate; face anteriorly centrally broadly sulcate, its lateral areas strongly transversely striate; posterior tibiæ with a strong spine beyond middle.

Length excl. tegm. 7; exp. tegm. 24 millim.

Hab. Nilgiri Hills (*Coll. Dist.*).

2281. **Eoscarta apicata,** sp. n.

Body and legs dull dark ochraceous; tegmina ochraceous, the costal area beyond middle and the apical margin broadly rosaceous, the latter with the cellular areas depressed, the apical veins being distinctly raised; wings hyaline, with a faint opaline lustre, the veins darker; pronotum finely transversely rugulose; face almost continuously centrally, longitudinally broadly sulcate; scutellum broadly longitudinally foveate.

Length excl. tegm. $3\frac{1}{2}$; exp. tegm. 11 millim.

Hab. Ceylon (*Green*).

I have received a single specimen from Mr. E. E. Green of this small but very distinct species. The longly sulcated face and the pronounced apical cellular areas to the tegmina are prominent characters.

2282. **Eoscarta atricapilla,** sp. n.

Body and legs dull ochraceous; head between the eyes broadly piceous-black; eyes shining black; tegmina dull ochraceous, crossed by a straight, narrow, transverse fuscous-brown fascia before middle; wings pale fuliginous; pronotum anteriorly deeply transversely foveate on each side, discally punctate and very finely pilose; face broadly centrally longitudinally sulcate for its whole length; posterior tibiæ with a single strong spine beyond middle

Length excl. tegm. 4; exp. tegm. 14 millim.

Hab. Burma; Momeit (*Doherty*).

2283. **Eoscarta illuminata,** sp. n.

Ferruginous-brown; face brownish-ochraceous; sternum, coxæ, and trochanters pale ochraceous; abdomen beneath piceous; legs ochraceous with piceous markings; tegmina piceous-brown, beyond middle pale dull ochraceous, where the veins are piceous-brown, and there is a subapical costal spot of the same colour; wings very

pale fuliginous with the veins darker; pronotum transversely rugulose; face moderately compressed, longitudinally broadly sulcate on its upper half, transversely striate on its lateral areas.

Length incl. tegm. 8 millim.

Hab. Assam; Margherita (*Doherty*).

Genus PHYMATOSTETHA.

Phymatostetha, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 721; *Atkins. J. A. S. B.* liv, p. 13 (1885).

Type, *P. perspicillaris*, White, from the Philippines.

Distribution. Oriental and Malayan Regions.

"Face tumid, seldom forming an angle below the middle, without a keel or longitudinal impression. Ocelli nearer each other than the eyes. Pronotum with the posterior margin before the scutellum slightly sinuated, posterior lateral margins straight or sinuated; mesosternum posteriorly with two conical tubercles. Legs moderate, posterior tibiæ armed with one or two spines." (*Stål.*)

This genus is easily distinguished from the following, *Cosmoscarta*, by the narrower and posteriorly straighter or sinuate pronotum; a secondary and subsidiary character may be found in the more prominently spined posterior tibiæ, especially the more developed basal spine.

A. *Tegmina with pale transverse fasciæ.*

2284. **Phymatostetha circumducta**, *Walk.* (Cercopis) *List Hom. Suppl.* p. 175 (1858); *Butl.* (Phymatostetha) *Cist. Ent.* i, p. 268 (1874); *Atkins. J. A. S. B.* liv, p. 13 (1885).

Cercopis costalis, *Walk. List Hom.* iii, p. 664 (1851), nom. præocc.

Head, pronotum, and scutellum black; anterior margin of vertex, a spot at base of face and anterior and lateral margins of pronotum ochraceous; abdomen above violaceous-black; body beneath and legs ochraceous; face, sublateral areas of prosternum, lateral margins of mesosternum, mesosternal tubercles, and central and lateral transverse spots to abdomen, black; femora streaked with piceous; tegmina piceous, costal and apical margins ochraceous, interior claval margin connected with a transverse fascia crossing tegmen before middle, and another transverse fascia before apical area testaceous-red; wings fuliginous, extreme base sanguineous,

Fig. 90.—*Phymatostetha circumducta.*

beyond which it is for a slight distance suffused with black; head transversely impressed in front of eyes; pronotum rugulose, a little transversely foveately impressed on each side before anterior margin, centrally finely and obscurely longitudinally carinate, lateral margins moderately reflexed; scutellum centrally foveate; face globose, finely carinate on lateral areas; mesosternal tubercles prominent, their apices subacutely recurved; rostrum reaching the intermediate coxæ; posterior tibiæ with a well-developed spine near base and a longer spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 8 to 12; exp. tegm. 22 to 27 millim.

Hab. Simla (*Lefroy*); Malabar (*Brit. Mus.*).—Malay Peninsula; Perak (*Doherty*).

2285. **Phymatostetha ståli**, *Butl. Cist. Ent.* i, p. 267 (1874); *Atkins. J. A. S. B.* liv, p. 13 (1885); *Dist. Tr. E. S.* 1900, p. 686.
Tomaspis circumducta, *Stål* (*nec Walk.*), *Öfv. Vet.-Ak. Förh.* 1865, p. 150; *id.* (Phymatostetha) *tom. cit.* 1870, p. 721.
Cosmoscarta sikkimensis, *Atkins. J. A. S. B.* lvii, p. 335 (1888).
Phymatostetha birmanica, *Jacobi, Mt. Mus. Berlin*, iii, p. 20, t. i, f. 8 (1905).

Head and pronotum piceous; vertex of head in front of eyes, face, lateral margins and anterior area of pronotum, scutellum and legs, ochraceous or pale testaceous; abdomen violaceous-black, beneath more or less ochraceously pilose; sternum piceous; tegmina piceous, a basal costal and claval streak, two transverse fasciæ, the first before middle the second before apical area, and the apical margin pale testaceous; wings pale fuliginous; head transversely incised before eyes; pronotum finely transversely wrinkled, centrally longitudinally carinate on anterior half, transversely foveately impressed on each side before anterior margin, the lateral margins moderately reflexed; scutellum foveate at base; face globose, very finely striate on lateral areas; mesosternal tubercles broad, subprominent; rostrum reaching the intermediate coxæ; posterior tibiæ with a moderately strong spine near base and a very strong spine a little beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 14 to 15; exp. tegm. 29 to 37 millim.

Hab. N.W. Himalaya (*Coll. Dist.*). Assam; Margherita and Nága Hills (*Doherty*); Bhim Tal, Kumaon (*Ind. Mus.*). Burma; Karennee (*fide Jacobi*).

2286. **Phymatostetha hilaris**, *Walk.* (Cercopis) *List Hom.* iii, p. 665 (1851); *Butl.* (Phymatostetha) *Cist. Ent.* i, p. 268 (1874); *Atkins. J. A. S. B.* liv, p. 14 (1885).

Head, pronotum, and scutellum piceous, thickly finely pilose; margins of head, and lateral and anterior margins of pronotum stramineous; abdomen above violaceous-black; face black, the anterior and half the central area very pale ochraceous; body beneath and legs stramineous, some sternal spots and narrow

transverse central and lateral spots to abdomen beneath, black; tegmina fuscous-brown, costal area as far as, and connected with, a narrow transverse fascia before middle, basal half of interior claval margin, a narrow transverse fascia before apical area, and a small subapical spot stramineous, apical margin brownish-ochraceous; wings slightly fuliginous, the veins piceous, extreme base pale testaceous, beyond which it is for a slight distance more or less suffused with black; head transversely impressed in front of eyes, beyond which it is centrally carinate; pronotum rugulose, faintly centrally longitudinally carinate, foveately impressed on each side near anterior margin, lateral margins moderately reflexed; scutellum centrally foveate; face globose, somewhat strongly striate on lateral areas; mesosternal tubercles compressed, their apices a little subacutely upturned; rostrum reaching the intermediate coxæ; posterior tibiæ with a somewhat strong spine near base and a longer spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 10 to 11; exp. tegm. 22 to 27 millim.

Hab. Malabar (*Brit. Mus.*).—Borneo.

B. *Tegmina with a transverse fascia and spots.*

2287. **Phymatostetha rengma**, *Dist. Tr. E. S.* 1900, p. 685, t. ix, f. 11.

Head, pronotum, and scutellum ochraceous; basal area of head, two large anterior spots to pronotum, base and apex of scutellum piceous or black; body beneath and legs piceous; face and lateral margins of prosternum ochraceous; abdomen above purplish-black, apex and lateral margins ochraceous; tegmina piceous, apical margins much paler, a claval fascia connected with the costa by a transverse fascia before middle, a basal costal spot, two discal spots beyond middle, and a subapical spot ochraceous; wings pale fuliginous; head broadly transversely impressed before eyes; pronotum finely wrinkled and somewhat coarsely punctate, the anterior black spots subfoveate, very obscurely centrally longitudinally carinate, the lateral margins moderately reflexed; face globose, very finely laterally striate; mesosternal tubercles imperfectly seen in specimen described; rostrum reaching the intermediate coxæ; posterior tibiæ with a strong spine near base and a longer spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 16; exp. tegm. 40 millim.

Hab. Assam; Nága Hills (*Doherty*).

2288. **Phymatostetha nangla**, *Dist. Tr. E. S.* 1900, p. 683, t. ix, f. 9.

Head and pronotum sanguineous; basal margin of head and two curved central fasciæ to pronotum which are united at base and angulated on each side near lateral angles, black; scutellum

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black; abdomen above dark indigo-blue; body beneath and legs piceous; face and lateral margins of prosternum sanguineous; tegmina piceous, a basal claval elongate spot with a smaller costal spot above it, a transverse fascia before middle, and three subapical spots sanguineous, apical margin dull ochraceous; wings pale fuliginous; head transversely impressed in front of eyes; pronotum very finely wrinkled and more finely punctate, foveate on each side before anterior margin, obsoletely finely centrally carinate, lateral margins moderately reflexed; scutellum centrally sulcate; face globose, very finely striate on lateral areas; mesosternal tubercles moderately prominent and their apices subacute; rostrum reaching the intermediate coxæ; posterior legs mutilated in specimen described; tegmina about two and a half times as long as broad.

Length excl. tegm. 17; exp. tegm. 45 millim.

Hab. Assam; Nága Hills (*Doherty*).

2289. **Phymatostetha pudica**, *Walk.* (Cercopis) *Ins. Saund., Hom.* p. 84 (1858); *Butl.* (Phymatostetha) *Cist. Ent.* i, p. 269 (1874); *Atkins. J. A. S. B.* liv, p. 15 (1885); *id. tom. cit.* lv, p. 195 (1886).

Head (including face) pale castaneous; pronotum tawny-brown, with a central longitudinal fascia and a transverse fascia behind each eye ochraceous, between the transverse and longitudinal fasciæ near anterior margin the colour is black; scutellum black, with a basal spot and apical area brownish-ochraceous; metanotum ochraceous; abdomen above violaceous-black, apical area centrally and longitudinally ochraceous; body beneath and legs black or piceous; bases of coxæ, femora (excluding apices), bases of tibiæ, lateral margins of prosternum, large rounded lateral segmental abdominal spots, and disk of fourth abdominal segment ochraceous; tegmina tawny-brown, with basal costal and claval streaks, a transverse series of three spots before middle, an irregular fascia before apical area, and the apical margin ochraceous; wings dark fuliginous, their bases sanguineous; pronotum finely rugulose, foveately impressed on each side before anterior margin, lateral margins slightly reflexed; mesosternal tubercles subconically produced; rostrum reaching the intermediate coxæ; posterior tibiæ with two spines, one near base, the other beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 16; exp. tegm. 42 millim.

Hab. Silhet (*Brit. Mus.*).

2290. **Phymatostetha signifera**, *Walk.* (Cercopis) *List Hom.* iii, p. 655 (1851); *Stål* (Tomaspis), *Öfv. Vet.-Ak. Förh.* 1865, p. 151; *id.* (Phymatostetha) *tom. cit.* 1870, p. 721; *Butl. Cist. Ent.* i, p. 270 (1874); *Atkins. J. A. S. B.* liv, p. 15 (1885).

Head, pronotum, and scutellum stramineous; base of head and two broad angulated fasciæ to pronotum black; abdomen above

violaceous-black, the apex and lateral marginal spots ochraceous; body beneath and legs pale ochraceous, disk of sternum and posterior margins of abdominal segments piceous; tegmina with about basal half stramineous, containing three fuscous spots, remaining area fuscous, with a much waved and broken testaceous fascia, apical margin dark ochraceous; wings very pale fuliginous; head transversely impressed before eyes; pronotum finely wrinkled and obscurely punctate, centrally finely longitudinally carinate,

Fig. 91.—*Phymatostetha signifera.*

foveately impressed on each side before anterior margin, lateral margins reflexed; face globose, distinctly transversely striate on each lateral area; mesosternal tubercles subacutely prominent; rostrum reaching the intermediate coxæ; posterior tibiæ with two long spines, one near base and the other beyond middle; tegmina nearly three times as long as broad.

Length excl. tegm. 14 to 15; exp. tegm. 38 to 40 millim.

Hab. Silhet (*Brit. Mus.*). Assam; Noa Dehing Valley (*Chennell*), Nága Hills (*Doherty*), Shillong (*Coll. Dist.*). Darjiling (*Coll. Dist.*).

2291. **Phymatostetha dubitabilis,** *Walk.* (Cercopis) *List Hom. Suppl.* p. 173 (1858); *Butl.* (Phymatostetha) *Cist. Ent.* i, p. 270 (1874); *Atkins. J. A. S. B.* liv, p. 16 (1885).

Head, pronotum, and scutellum black; anterior areas of head and face, lateral margins and a central longitudinal fascia to pronotum, and disk of scutellum dull ochraceous; abdomen above castaneous, paler at base, anal appendage above and beneath testaceous; body beneath black, lateral margins of prosternum ochraceous, coxæ, legs, and segmental abdominal margins testaceous-red, anterior and intermediate tibiæ piceous; tegmina testaceous-red, interior margin of clavus and a spot on its posterior margin, two curved and very irregular transverse fasciæ, the first narrower at about one-third from base, the second wider and outwardly angulate at about middle, and two spots beyond it, the lowermost often obscure, piceous, apex paler and more ochraceous;

wings pale fuliginous, the base narrowly sanguineous; head transversely impressed in front of eyes; pronotum rugulose and finely punctate, very finely centrally longitudinally carinate, foveate on each side near anterior margin, lateral margins reflexed; scutellum foveate at disk; face globose, laterally transversely striate; mesosternal tubercles subprominent; rostrum reaching the intermediate coxæ; posterior tibiæ with two strong spines, one near base, the other near middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 13 to 16; exp. tegm. 33 to 37 millim.

Hab. "Hindostan" (*Brit. Mus.*).

C. *Tegmina with pale spots, not transversely fasciated.*

2292. **Phymatostetha stellata**, *Guér.* (Cercopis) *Icon. Règne An.*, *Texte*, p. 368 (1829–44); *Stål* (Phymatostetha), *Öfv. Vet.-Ak. Förh.* 1870, p. 721; *Butl. Cist. Ent.* i, p. 269 (1874); *Atkins. J. A. S. B.* liv, p. 14 (1885); *Jacobi, Mt. Mus. Berlin*, iii, p. 19, t. i, f. 14 (1905).

Cercopis dorsimacula, *Walk. List Hom.* iii, p. 663 (1851).

Cercopis tomentosa, *Walk. J. Linn. Soc., Zool.* x, p. 284 (1867).

Head, pronotum, and scutellum black; anterior margin of head, lateral margins and two discal spots to pronotum, and two large basal spots to scutellum testaceous; abdomen above violaceous-black; body beneath and legs black or piceous, lateral margins of prosternum ochraceous; tegmina black with eight testaceous spots—two basal, situate in costal and claval areas, two before middle, one discal at middle, two before apical area, and one subapical; wings fuliginous; disk of vertex concave; pronotum finely punctate and rugulose, centrally longitudinally carinate, foveately impressed on each side before anterior margin, lateral margins reflexed; scutellum transversely striate, centrally foveate; face ochraceous at base, transversely striate, smoothly, linearly, centrally interrupted; mesosternal tubercles acutely prominent; rostrum reaching the intermediate coxæ; posterior tibiæ with two strong spines, one near base, the other beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 16; exp. tegm. 40 millim.

Hab. Malabar (*Brit. Mus.*).—Malay Peninsula; Perak (*Doherty*). Borneo; Kina Balu (*Whitehead*). Sumatra.

2293. **Phymatostetha sema**, *Dist. Tr. E. S.* 1900, p. 684, t. ix, f. 10.

Head, pronotum, and scutellum piceous; about apical half of head, lateral and anterior margins and three elongate discal spots to pronotum, and the central area of scutellum testaceous; abdomen above black, the apex and lateral marginal spots sanguineous; body beneath and legs piceous, coxal spots, bases and apices of femora, tarsi (excluding apices), a broad central area to posterior

tibiæ, and transverse fasciæ to abdomen beneath, testaceous; face and lateral margins of prosternum reddish-ochraceous; tegmina dull ochraceous-brown, with nine ochraceous spots, of which two are basal in costal and claval areas, one a little beyond and beneath radial area, three in transverse series before middle, two before apical area and one subapical, apical and costal margins paler and more ochraceous; wings pale fuliginous, narrowly purplish-red at base; head transversely impressed before eyes; pronotum transversely rugulose, obscurely centrally longitudinally carinate, foveately impressed on each side near anterior margin, lateral margins reflexed; scutellum transversely striate, centrally foveate; face very finely transversely striate on lateral areas, broadly smoothly centrally interrupted; mesosternal tubercles broadly compressed and subacute; posterior tibiæ with two strong spines, one near base, the other beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 17 to 21; exp. tegm. 42 to 50 millim.

Hab. Assam; Nága Hills (*Doherty*).

2294. **Phymatostetha dorsivitta,** *Walk.* (Cercopis) *List Hom.* iii, p. 662 (1851); *Butl.* (Phymatostetha) *Cist. Ent.* i, p. 269 (1874); *Atkins. J. A. S. B.* liv, p. 15 (1885).

Cercopis humeralis, *Walk. List Hom.* iii, p. 662 (1851).

Phymatostetha icterica, *Jacobi, Ges. Naturf. Freunde Berlin,* 1902, p. 24; *id. Zool. Jahrb.* xxi, p. 443, t. xxi, f. 11 (1905).

Head (including face) and pronotum testaceous-red; base of head between eyes, and a sublateral longitudinal fascia on each side of pronotum which are widened at and join posterior angles, black; scutellum black; abdomen above violaceous-black, the lateral margins and apex sanguineous; body beneath and legs piceous or black, lateral margins of prosternum, lateral and segmental margins and apical area to abdomen testaceous-red; tegmina piceous with eight testaceous-red spots, of which the two basal are elongate and situate in the costal and claval areas, the remaining spots rounded, three in curved transverse series before middle, two before apical area and one subapical; wings fuliginous, the base sanguineous; head transversely impressed in front of eyes; pronotum rugulose and finely punctate, centrally longitudinally carinate, foveately impressed on each side before anterior margin, lateral margins reflexed; scutellum transversely striate, centrally foveate, the disk sometimes testaceous; face globose, finely transversely striate; mesosternal tubercles subconically prominent; rostrum reaching the intermediate coxæ; posterior coxæ with two strong spines, one near base, the other beyond middle; tegmina about two and a half times as long as broad; body beneath finely and legs more longly pilose.

Length excl. tegm. 16 to 17; exp. tegm. 38 to 45 millim.

Hab. Almorah and Silhet (*Brit. Mus.*).—Tonkin.

2295. **Phymatostetha triseriata**, *Butl. Cist. Ent.* i, p. 267 (1874).

"Allied to *P. ståli*, larger, with broader tegmina, the transverse bands of which are each broken up into three spots; head red-brown, becoming redder in front; clypeus scarlet; thorax, pectus, and legs piceous, the lateral anterior margins of the thorax scarlet; scutellum black, with scarlet margin; abdomen shining purple-black; tegmina piceous, the costal margin, a streak on the outer basal edge of clavus, and two transverse series each of three spots, scarlet, apical margin bright testaceous; wings slightly fuscesent, base scarlet." (*Butler.*)

I possess a specimen from Garwhal which is a slight varietal form of the above; the clypeus has its lateral areas black; the tegminal markings are testaceous, not scarlet; head transversely impressed between eyes; pronotum finely rugulose and punctate; face very finely transversely striate on lateral areas; mesosternal tubercles broadly subprominent; rostrum reaching the intermediate coxæ, posterior tibiæ with a strong spine near base and a longer spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 14; exp. tegm. 37 millim.

Hab. N.W. India; Garwhal (*Coll. Dist.*).—Laos (*Brit. Mus.*).

2296. **Phymatostetha binotata**, *Dist. Tr. E. S.* 1878, p. 322; *Atkins. J. A. S. B.* liv, p. 17 (1885).

Head (including face) pale sanguineous; pronotum piceous, the lateral margins pale sanguineous; scutellum black; abdomen above shining purplish-black; body beneath black; legs piceous, femora somewhat castaneous; lateral margins of prosternum pale sanguineous; tegmina piceous, their margins and two irregularly rounded spots, one before middle and the other before apical area, pale sanguineous*; wings pale fuliginous, bases narrowly sanguineous; head angularly transversely impressed in front of eyes; pronotum finely transversely rugulose, foveately impressed on each side before anterior margin, indistinctly centrally longitudinally carinate, the lateral margins reflexed; scutellum transversely striate, centrally foveate; face slightly transversely striate on each lateral area; mesosternal tubercles broadly subacutely prominent; pronotum reaching the intermediate coxæ; posterior tibiæ with a

Fig. 92.—*Phymatostetha binotata.*

* Since I described this species in 1878, I find that time in cabinet specimens transforms the colour sanguineous into more or less ochraceous.

short spine near base and a longer spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 14; exp. tegm. 35 millim.

Hab. Assam; Sadiya (*Chennell*).

2297. **Phymatostetha karenia,** *Dist. Tr. E. S.* 1900, p. 685, t. ix, f. 12.

Head (including face) reddish-ochraceous, narrowly piceous at base; pronotum pale luteous; scutellum, abdomen above, body beneath and legs bluish-black or piceous; lateral margins of prosternum and two spots near anterior coxæ pale luteous; tegmina piceous, their apical margins ochraceous, with four pale luteous spots, situate two before middle and two before apical area; wings pale fuliginous; head transversely, slightly, angularly impressed in front of eyes; pronotum finely transversely rugulose, obscurely centrally carinate, foveately impressed on each side before anterior margin, lateral margins moderately reflexed; scutellum transversely striate, centrally foveate; face finely transversely striate on each lateral area; mesosternal tubercles broadly compressed and subacute; rostrum reaching the intermediate coxæ; posterior tibiæ with a strong spine near base and a longer spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 15 to 16; exp. tegm. 35 to 43 millim.

Hab. Burma; Hsipaw (*Brit. Mus.*), Karen Hills (*Doherty*).

2298. **Phymatostetha pudens,** *Walk.* (Cercopis) *List Hom. Suppl.* p. 174 (1858); *Stål* (Tomaspis), *Öfv. Vet.-Ak. Förh.* 1865, p. 151; *id.* (Phymatostetha) *tom. cit.* 1870, p. 721; *Butl. Cist. Ent.* i, p. 270 (1874); *Atkins. J. A. S. B.* liv, p. 16 (1885).

Head (including face) and pronotum testaceous-red; base of head, apical area of face, and two spots near anterior margin of pronotum, black; scutellum and abdomen above black, the apex and

Fig. 93.—*Phymatostetha pudens.*

large lateral marginal spots to the latter testaceous-red; body beneath and legs black; lateral margins of prosternum and lateral margins (broken at segments) of abdomen beneath testaceous-red; tegmina testaceous-red with four black spots before middle, two elongate at costal area, and two smaller on the claval area; wings

very pale fuliginous, the basal area broadly carmine-red; head transversely impressed in front of eyes; pronotum finely transversely rugulose, foveately impressed on each side near anterior margin, faintly centrally longitudinally carinate, lateral margins slightly reflexed; face slightly laterally striate; mesosternal tubercles prominently conically produced; rostrum reaching the intermediate coxæ; posterior tibiæ with a strong spine near base and another beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 19 to 20; exp. tegm. 47 millim.

Hab. "E. India" (*Brit. Mus.*), Sikhim (*fide Atkinson*). Darjiling (*Coll. Dist.*).

D. *Tegmina pale with a dark subcostal streak.*

2299. **Phymatostetha basiclava,** *Walk.* (Cercopis) *List Hom. Suppl.* p. 172 (1858); *Stål* (Phymatostetha), *Öfv. Vet.-Ak. Förh.* 1870, p. 721; *Butl. Cist. Ent.* i, p. 270 (1874); *Atkins. J. A. S. B.* liv, p. 17 (1885).

Tomaspis larinia, *Stål, Öfv. Vet.-Ak. Förh.* 1865, p. 152.

Head (including face), pronotum, and scutellum testaceous; base of head between eyes, two large spots near anterior margin of pronotum and two very small spots between them, and basal angles and apex of scutellum black; abdomen above violaceous-black, the anal appendage above and beneath testaceous-red; body beneath and legs black, lateral margins of prosternum testaceous; coxal spots, apices of femora, and broad transverse segmental fasciæ to abdomen testaceous-red; tegmina testaceous with a black basal streak beneath costal area which extends to about one-third from base and is apically broadened and turned downward; wings very pale fuliginous, sanguineous at extreme base, and suffused with pale piceous at anal area; head transversely impressed in front of eyes; pronotum finely rugulose and punctate, somewhat strongly foveate on each side before anterior margin, obsoletely longitudinally centrally carinate, the lateral margins reflexed; scutellum transversely striate, discally foveate; face globose, finely laterally transversely striate; mesosternal tubercles broadly prominent; rostrum reaching the intermediate coxæ; posterior tibiæ with two strong spines, one near base, the other beyond middle; tegmina about three times as long as broad.

Length excl. tegm. 21; exp. tegm. 48 millim.

Hab. Sikhim (*Knyvett, Ind. Mus.*). E. Himalayas; Kalimpong (*Mann, Ind. Mus.*). Central India (*Val. Ball, Coll. Dist.*).

E. *Tegmina black with pale bases* (small species).

2300. **Phymatostetha lydia,** *Stål* (Cercopis), *Öfv. Vet.-Ak. Förh.* 1865, p. 149; *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 257 (1874); *Atkins. J. A. S. B.* liv, p. 9 (1885).

Head (including face) and pronotum black, basal area of the latter saffron-yellow; scutellum black; abdomen above ochraceous with the apex black; body beneath and legs saffron-yellow,

anterior lateral margin of prosternum, disk of mesosternum, and the tarsi black; tegmina black, with the base saffron-yellow or testaceous; wings pale fuliginous, the base saffron-yellow; head transversely impressed in front of eyes; pronotum thickly finely punctate, foveately impressed on each side near anterior margin, lateral margins reflexed; scutellum discally foveate; face globose, laterally transversely striate; mesosternal keels not prominent; rostrum reaching the intermediate coxæ; posterior tibiæ with a very short spine near base and a somewhat longer spine beyond middle; tegmina little more than twice as long as broad.

Length excl. tegm. 8 to 10; exp. tegm. 20 to 23 millim.

Hab. "East India" (*Brit. Mus.*).

Stål also states that sometimes the tegmina have no saffron bands and sometimes have two, one before and the other behind the middle. I have not seen these varieties.

2301. **Phymatostetha deschampsi,** *Léth. Bull. Soc. Zool. Fr.* 1892, p. 208.

Head (including face) shining black, the latter with a central ochraceous line; pronotum black, the posterior area sanguineous, in some specimens sanguineous with only the anterior area black; body beneath and legs pale sanguineous; a subquadrate spot on lateral margins of prosternum behind eyes, and the apex of abdomen, black; tegmina black, the basal area sanguineous; wings pale fuliginous, base pale sanguineous; head transversely impressed in front of eyes, pronotum very finely punctate, foveately impressed on each side near anterior margin; lateral margins slightly reflexed; scutellum discally foveate; face globose, finely laterally transversely striate; mesosternal keels not prominent; rostrum about reaching the intermediate coxæ; posterior tibiæ with a very short spine near base and a somewhat long spine beyond middle; tegmina little more than twice as long as broad, unexpanded as in the figure above, they have the appearance of greater proportional length.

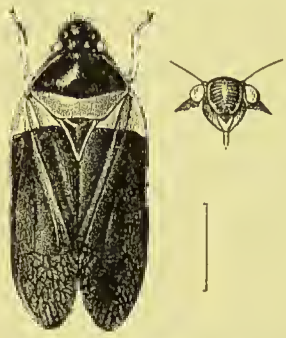

Fig. 94.
Phymatostetha deschampsi.

Length excl. tegm. 8; exp. tegm. 18 millim.

Hab. Trivandrum (*Brit. Mus.*).

Genus COSMOSCARTA.

Cosmoscarta, *Stål, Hem. Fabr.* ii, p. 11 (1869); *id. Öfv. Vet.-Ak. Förh.* 1870, p. 718; *Atkins. J. A. S. B.* liv, p. 6 (1885).
Cercopis, *Stål* (part.), *Hem. Afr.* iv, p. 55 (1866).
Trichoscarta, *Bredd. Soc. Ent.* xvii, p. 51 (1902).

Type, *C. heros*, Fabr., from China.

Distribution. Oriental, Malayan, and Eastern Palæarctic Regions.

The species belonging to *Cosmoscarta* were formerly included in the old Fabrician genus *Cercopis*. From this it differs, as pointed out by Stål, in having the front very large and tumid, obtuse, extended on the facial side almost to the eyes, devoid of any longitudinal furrow or keel. The posterior tibiæ have a strong spine beyond the middle and a small spine more or less developed, sometimes almost obsolete, near base. It is distinguished from *Phymatostetha* by the greater breadth of the pronotum.

This is a very extensive genus and is largely represented in the fauna of British India. The species are very difficult to group by structural characters which generally in allied species are of inconstant or secondary character, though further study may discover a better method. They are found, however, in groups in which the markings of the tegmina provide much guidance; these I have largely used as most helpful to the readers of this book in British India, at the same time describing the structural characters of each species.

A. *Tegmina with transverse pale fasciæ.*

a. *Pronotum black, bluish black, or castaneous.*

2302. **Cosmoscarta heroina**, sp. n.

Head (including face), pronotum, and prosternum dark, shining, bluish-black; meso- and metasterna, legs, and abdomen above and beneath sanguineous; tegmina black, basal area and a transverse fascia before apical area sanguineous; wings pale fuliginous, base

Fig. 95.—*Cosmoscarta heroina.*

and costal margin narrowly sanguineous; head transversely impressed before eyes; pronotum with a central longitudinal carination on its anterior half; mesosternum with two well-developed central tubercles between which the rostrum passes and about reaches the intermediate coxæ; face globosely prominent, transversely striate; tegmina very thickly and finely punctate, the reticulate veins on the apical area prominently

raised, costal margin evenly convexly arched from base; posterior tibiæ with one strong spine beyond middle.

Length excl. tegm. 12 to 15; exp. tegm. 30 to 40 millim.

Hab. Assam; Nága Hills (*Doherty*), Margherita (*Ind. Mus.*).

This species is allied to the Chinese species, *C. heros*, Fabr., the type of the genus.

2303. **Cosmoscarta montana,** *Dist. Tr. E. S.* 1900, p. 678.

Head (including face), pronotum, and prosternum bluish-black; meso- and metasterna, legs, and abdomen above and beneath ochraceous; abdomen above with the segmental margins narrowly piceous; tegmina black, with the basal area and a transverse fascia before the apical area pale ochraceous; wings very pale fuliginous; head transversely impressed before eyes; pronotum with a central longitudinal carination on its anterior half; mesonotum with two central black subacute conical tubercles, through which the rostrum passes but does not reach the intermediate coxæ; tegmina somewhat elongate, about two and a half times as long as broad, very thickly minutely punctate; posterior tibiæ with a strong spine beyond middle.

Length excl. tegm. 9 to 10; exp. tegm. 25 to 26 millim.

Hab. Assam; Nága Hills (*Doherty*).

2304. **Cosmoscarta nagasana,** *Dist. Tr. E. S.* 1900, p. 678.

Body bluish-black; apex of abdomen, coxæ and femora dull sanguineous, tibiæ and tarsi piceous; eyes luteous; tegmina piceous-black, with two transverse pale ochraceous fasciæ, the first broader at about one-fourth from base, the second at about one-third from apex; wings very pale fuliginous; head transversely impressed in front of eyes; pronotum very finely punctate, with two large transverse foveæ near anterior margin and a smaller foveate impression near each lateral angle, obsoletely longitudinally centrally carinate on anterior half, the lateral margins and angles very distinctly reflexed; scutellum transversely foveate at base; posterior tibiæ with a stroug spine beyond middle; mesonotum with two broad, somewhat compressed, subtriangular tubercles; rostrum not reaching the intermediate coxæ.

Length excl. tegm. 12; exp. tegm. 28 millim.

Hab. Assam; Nága Hills (*Doherty*).

2305. **Cosmoscarta decisa,** *Walk.* (Cercopis) *List Hom. Suppl.* p. 175 (1858); *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 258 (1874); *Atkins. J. A. S. B.* liv, p. 9 (1885); *id.*, var., *tom. cit.* lvii, p. 336, t. xv, upper right-hand figure (1888).

Head (including face), pronotum, scutellum, and sternum shining bluish-black; abdomen above and beneath black, above with the segmental margins narrowly ochraceous, aud the anal segment also of that colour; legs ochraceous, femora more or less

suffused with piceous, the tarsi and anterior and intermediate tibiæ piceous; tegmina black, with three transverse pale ochraceous fasciæ, the first irregular and basal, connected at inner margin with the second which is straight and situate before middle, third before apical area, the basal fascia is also angularly produced in costal area; head transversely impressed before eyes; pronotum very obsoletely longitudinally carinate on its anterior half; mesonotum with two moderately short tubercles; rostrum about reaching the intermediate coxæ; tegmina moderately short and broad, not much more than twice as long as broad, rather strongly arched at base of costal margin, very thickly and minutely punctate.

Length excl. tegm. 9; exp. tegm. 25 millim.

Hab. Assam: Nága Hills (*Doherty*). Darjiling (*Coll. Dist.*).— W. Yunan (*Anderson*).

I possess a variety from Darjiling in which the fasciæ to the tegmina are sanguineous.

2306. **Cosmoscarta trigona**, *Walk.* (Cercopis) *List Hom.* iii, p. 660 (1851); *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 257 (1874); *Atkins. J. A. S. B.* liv, p. 9 (1885).

Cercopis amplicollis, *Walk. List Hom. Suppl.* p. 175 (1858).

Head, pronotum, and body beneath black; scutellum and legs testaceous; tibiæ and tarsi fuscous; abdomen above black, segmental margins and anal segment sanguineous; tegmina piceous, crossed by two testaceous or sanguineous transverse angulate fasciæ, the first near middle, the second just before apical area, the first connected or nearly connected with base along claval area and also along the costal area by the same colour; apical area more or less fuscous-brown; wings very pale fuliginous, the base and costal margin narrowly sanguineous; head transversely impressed before eyes; pronotum transversely impressed, centrally longitudinally carinate on anterior half, both head and pronotum more or less ochraceously tomentose; mesonotum with two broad compressed tubercles; rostrum not quite reaching the intermediate coxæ; face globose, the striations brownish-ochraceous; posterior tibiæ with a single short spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 5½ to 6; exp. tegm. 27 to 29 millim.

Hab. Assam: Margherita (*Doherty*), Khási Hills (*Chennell*), Nága Hills (*Doherty*). Sikhim (*Ind. Mus.*). Darjiling (*Coll. Dist.*). Nilgiri Hills (*Hampson*).

2307. **Cosmoscarta metallica**, *Dist. Tr. E. S.* 1900, p. 679.

Body dark indigo-blue; apex and lateral margins of abdomen, coxæ and femora coral-red; tibiæ and tarsi fuscous; segmental margins to abdomen beneath dull reddish; tegmina black, with two irregularly shaped and angulate sanguineous transverse fasciæ, the first at about one-third from base, the other before

apical area, the innermost connected with base by a slender sanguineous longitudinal fascia; wings very pale fuliginous; head transversely impressed before eyes; pronotum very finely punctate, strongly foveate on each side near anterior margin, and more narrowly so near each lateral angle, the lateral margins rather strongly reflexed; face strongly prominent; mesosternum with two moderate-sized tubercles; rostrum reaching the intermediate coxæ; posterior tibiæ with a single moderate-sized spine beyond middle; tegmina thickly and finely punctate, about two and a half times as long as broad.

Var. Tegmina with the transverse fasciæ ochraceous, not sanguineous.

Length excl. tegm. 11; exp. tegm. 26 millim.

Hab. Burma; Ruby Mines (*Doherty*).

2308. **Cosmoscarta macgillivrayi**, *Dist. Tr. E. S.* 1900, p. 674.

Head (including face), pronotum, scutellum, and sternum bluish-black, the latter somewhat thickly ochraceously pilose; abdomen and legs testaceous, the latter more or less longitudinally suffused with castaneous; scutellum with an elongate testaceous spot on each lateral margin; abdomen above with the segmental margins sanguineous, beneath thickly ochraceously pilose; tegmina pale ochraceous, the venation, disk of costal margin, apical area, two large spots beneath costal area, and a claval spot piceous; base

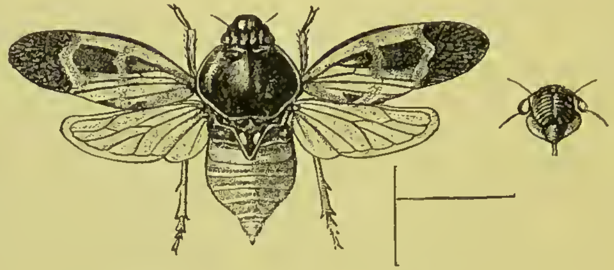

Fig. 96.—*Cosmoscarta macgillivrayi.*

and two transverse fasciæ, the first near middle and the second before apical area, sanguineous, neither of these fasciæ reach the costa and the central one is connected along claval margin with the basal sanguineous coloration; wings very pale fuliginous, base and costal margin very narrowly sanguineous; head transversely impressed before eyes; pronotum transversely wrinkled, finely longitudinally centrally carinate, lateral margins reflexed; mesonotum with two short, broad, compressed tubercles; rostrum reaching intermediate coxæ; tegmina slender, about three times as long as broad; posterior tibiæ with a single prominent spine beyond middle.

Length excl. tegm. 11; exp. tegm. 28 millim.

Hab. Sikhim (*Coll. Dist.*).

The British Museum contains several unlocalized specimens of this species collected during the voyage of H.M.S. 'Herald.'

2309. **Cosmoscarta pictilis,** *Stål* (Cercopis), *Öfv. Vet.-Ak. Förh.* 1854, p. 249; *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 266 (1874); *Atkins. J. A. S. B.* liv, p. 12 (1885).

"Obscurely green chalybeous; scutellum on both sides at base and also the apex weakly spotted with cinnabar; tegmina sordidly white, basal margin and two fasciæ weakly cinnabar; two spots, one smaller before the first fascia, and the other near the apex, nigro-fuscous; femora red; tibiæ blackish." (*Stål.*)

"Long. 15, lat. 6 millim."

"*Hab.* India Orientalis."

Butler, from the description, inclined to the view that this species might belong to the genus *Phymatostetha.* Since then I have described, and on the previous page figured, an allied species, *C. macgillivrayi*, and there seems little doubt that the *pictilis* of Stål is a *Cosmoscarta.*

2310. **Cosmoscarta minor,** *Atkins. J. A. S. B.* lvii, p. 335 (1888).

"Head and thorax metallic bluish-black, shining, the latter finely impressly punctured; base and apex of abdomen reddish, a broad transverse median band brownish-black; tegmina blackish, with a basal streak giving off a short subcostal branch and two transverse bands, one at the base and the other at the apex of the middle third, red; wings fuscous-hyaline; legs brown; posterior coxæ and femora often more or less croceous or reddish."

"A small species allied to the *C. decisa,* Walk. group." (*Atkinson.*)

Length 7; exp. tegm. 21 millim.

"*Hab.* Sikhim; Dam Dim (Bhután Duárs)."

2311. **Cosmoscarta shillongana,** sp. n.

Head, pronotum, and scutellum dark bluish-black, finely pilose;

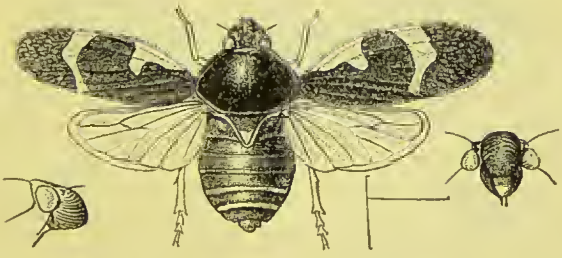

Fig. 97.—*Cosmoscarta shillongana.*

apex of scutellum ochraceous; body above and beneath piceous; posterior abdominal segmental margins very pale luteous; coxæ

and legs pale ochraceous ; tegmina piceous, finely pilose, a curved fascia broadest near costa, transversely crossing tegmen before apical area, and a large longitudinal basal costal spot which is apically a little prolonged inwardly, pale ochraceous ; wings slightly fuliginous, the veins darker ; head transversely impressed in front of eyes ; pronotum thickly finely punctate, foveately impressed on each side before anterior margin, obliquely foveate near each lateral angle, distinctly longitudinally carinate on anterior half, lateral margins strongly reflexed ; face strongly transversely striate and narrowly medially interrupted, a little foveately impressed at base ; mesosternal tubercles subprominent ; rostrum not quite reaching the intermediate coxæ ; posterior tibiæ with a moderately strong spine beyond middle ; tegmina a little more than twice as long as broad.

Length excl. tegm. 8 ; exp. tegm. 19 millim.

Hab. Shillong (*Coll. Atkinson, Brit. Mus.*).

2312. **Cosmoscarta margheritæ**, sp. n.

Head, pronotum, scutellum, and sternum bluish-black ; abdomen and legs testaceous, tibiæ and tarsi darker and more fuscous than the femora ; tegmina shining fuscous-brown, sanguineous at base, crossed by two greyish-white transverse fasciæ, the first before and the second beyond middle ; wings very pale fuliginous, the base and costal margin very narrowly sanguineous ; head transversely impressed before eyes ; face globose, distinctly transversely striate ; pronotum faintly transversely wrinkled, anterior central carination obsolete, moderately foveate on each side near anterior margin, lateral margins reflexed ; mesosternum with two broad obtuse tubercles ; rostrum not reaching the intermediate coxæ ; tegmina long and slender, three times as long as broad ; posterior tibiæ with a single spine beyond middle.

Length excl. tegm. $8\frac{1}{2}$; exp. tegm. 23 millim.

Hab. Assam ; Margherita (*Doherty*).

The long and narrow tegmina are a distinctive character of this species.

2313. **Cosmoscarta castanea**, *Dist. Tr. E. S.* 1900, p. 678.

Head, pronotum, scutellum, sternum, and legs pale castaneous ; abdomen violaceous-brown ; tegmina pale castaneous with two narrow transverse ochraceous fasciæ, the first a little curved about one-fourth from base, the second more slender and broken about one-third from apex ; wings pale brownish ; pronotum thickly and finely punctate, with an obscure central carination, two foveate impressions near anterior margin, and an elongate impression behind each lateral angle, margins reflexed ; face shortly and moderately sulcate, moderately transversely striate ; mesosternal tubercles short but little prominent : rostrum reaching the intermediate coxæ ; posterior tibiæ with a very short spine near

base and a long spine beyond middle; tegmina less than two and a half times as long as broad.

Length excl. tegm. 13; exp. tegm. 40 millim.

Hab. Assam; Nága Hills (*Butler, Brit. Mus.*).

2314. **Cosmoscarta ducens**, *Walk.* (Cercopis) *List Hom.* iii, p. 655 (1851); *Stål, Ann. Soc. Ent. Fr.* 1865, p. 188; *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 255 (1874); *Atkins. J. A. S. B.* liv, p. 8 (1885).

Head, pronotum, and scutellum black; apex of vertex, lateral margins of pronotum, and apex of scutellum obscurely piceous-red; body beneath piceous; legs piceous-red; tegmina black, crossed by two narrow transverse reddish-ochraceous fasciæ, the first, which is more or less sinuate, at about one-third from base, the second and straighter fascia before the reticulate apical area; wings dark fuliginous; head transversely incised in front of eyes; pronotum thickly and finely punctate, obliquely foveate on each side before anterior margin, and centrally transversely impressed near anterior margin, narrowly obliquely foveate near each lateral angle, lateral margins reflexed; scutellum foveate at base, centrally transversely wrinkled on apical area; face obscurely transversely striate, only narrowly longitudinally medially interrupted; mesosternal tubercles broad, compressed, subacutely angulate; rostrum reaching the intermediate coxæ; posterior tibiæ with a strong spine beyond middle; tegmina a little more than twice as broad as long.

Length excl. tegm. 16; exp. tegm. 30 millim.

Hab. Sylhet (*Brit. Mus.*). Assam; Margherita (*Coll. Dist.*), Nága Hills (*fide Atkinson*).

2315. **Cosmoscarta egens**, *Walk.* (Cercopis) *List Hom. Suppl.* p. 171 (1858); *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 255 (1874); *Atkins. J. A. S. B.* liv, p. 8 (1885).

Body black; scutellum, abdominal segmental and lateral margins,

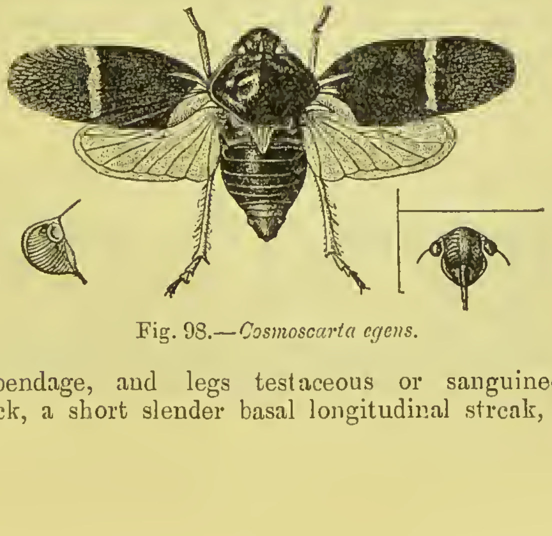

Fig. 98.—*Cosmoscarta egens.*

anal appendage, and legs testaceous or sanguineous; tegmina black, a short slender basal longitudinal streak, a broader

curved fascia at base of clavus, and a transverse fascia before apical area testaceous or sanguineous; head transversely impressed before eyes; pronotum strongly foveate on each side near anterior margin, and more slenderly and obliquely so near each lateral angle, lateral margins strongly reflexed; mesonotum with two short but rather acutely pointed tubercles; rostrum not quite reaching the intermediate coxæ; posterior tibiæ with a single rather strong spine beyond middle; tegmina very thickly and finely punctate, not quite two and a half times as long as broad.

Var. Tegmina without the subapical transverse fascia.

Length excl. tegm. 5 to 8; exp. tegm. 27 to 33 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; Margherita (*Doherty*), Khási Hills (*Chennell*), Nága Hills (*Doherty*).—W. China; Omei (*Coll. Dist.*).

2316. **Cosmoscarta elegantula,** *Butl. Cist. Ent.* i, p. 265 (1874); *Atkins. J. A. S. B.* liv, p. 12 (1885).

Head, pronotum, scutellum, sternum, and legs black; abdomen bluish-black; coxæ reddish-piceous; tegmina shining fuscous-brown, crossed by a testaceous-red fascia before the apical area, between which and base the veins, two fasciate streaks in costal area, the larger occupying part of costal margin, and a claval marginal fascia are also testaceous-red; wings very pale fuliginous with the veins darker; head broadly irregularly impressed between the eyes; pronotum punctate and finely transversely rugulose, moderately foveate on each side before anterior margin, the lateral margins reflexed; mesonotum with two broad obtuse tubercles; rostrum reaching the intermediate coxæ; tegmina long, slender, but not more than two and a half times as long as broad; posterior tibiæ with a single long spine beyond middle.

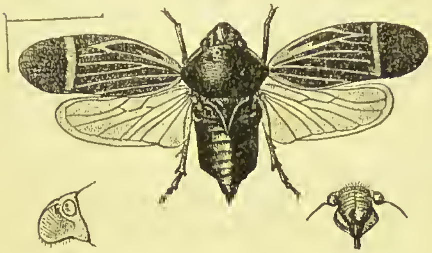

Fig. 99.—*Cosmoscarta elegantula.*

Length excl. tegm. 8; exp. tegm. 23 millim.

Hab. Assam; Margherita and Nága Hills (*Doherty*).

b. *Pronotum black, with a pale transverse fascia, or with pale discal spots.*

2317. **Cosmoscarta dimidiata,** *Dallas* (Cercopis), *Tr. E. S.* 1850, p. 11; *Atkins. J. A. S. B.* lv, p. 195 (1886); *Dist.* (Cosmoscarta) *Tr. E. S.* 1900, p. 682; *Bredd.* (part.) *Deutsche Ent. Zeitschr.* 1903, p. 89.

Cercopis undata, *Walk. List Hom.* iii, p. 659 (1851); *Stål, Öfv. Vet.-Ak. Förh.* 1865, p. 148; *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 258 (1874); *Atkins. J. A. S. B.* liv, p. 10 (1885); *id. tom. cit.* lvii, p. 333 (1888).

Var. tripunctata, *Atkins. J. A. S. B.* lvii, pp. 333 & 334, t. xv, upper left-hand figure.
Var. affinis, *Atkins. tom. cit.* pp. 333 & 334.

Head, pronotum, scutellum, sternum, and legs black: abdomen bluish-black; pronotum with a broad transverse ochraceous fascia occupying disk, and nearer to anterior than to posterior margin; abdomen above with the segmental margins piceous-brown; tegmina black, with the base and two irregularly waved or angulated transverse fascia, the first at about middle, the second broken and near apical area, sanguineous; wings pale, subhyaline, very slightly fuliginous, the veins fuscous; head transversely impressed before eyes; pronotum very finely punctate, the lateral margins slightly reflexed; scutellum transversely striate; face with the lateral area striate, the central area smooth; mesonotum with two flattened subtriangular tubercles; rostrum reaching the intermediate coxæ; posterior tibiæ with a long spine beyond middle and a short spine near base; tegmina about two and a half times as long as broad.

Var. *a.* Tegmina with the basal pale area and the first transverse pale fascia obliterated, and the second fascia broken into three spots (*tripunctata*, Atkins.).

Var. *b.* "Rufous-testaceous bands at the base and in the middle reduced to narrow lines, and the apical band to three somewhat distant spots arranged in a triangle" (*affinis*, Atkins.).

Length excl. tegm. 11 to 13; exp. tegm. 29 to 31 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; Khási Hills (*Chennell*), Nága Hills (*Doherty*), Dibrugarh (*fide Atkins.*). Dam-Dim, Bhután Duárs (*fide Atkins.*), Shillong (*Ind. Mus.*).—Malay Peninsula; Perak and Singapore. China (*Coll. Dist.*).

2318. **Cosmoscarta zonaria**, sp. n.

Head, pronotum, scutellum, and body beneath black; pronotum with the lateral and posterior margins and a transverse fascia before middle ochraceous: a lateral spot in front of eyes, face (excluding base) and the legs testaceous, anterior and intermediate tibiæ and tarsi a little darker than the femora; tegmina black, crossed by two narrow transverse ochraceous fasciæ, the first before, the second beyond middle; wings very slightly fuliginous; head transversely impressed in front of eyes; pronotum finely obscurely punctate, centrally finely longitudinally carinate on anterior half, lateral margins reflexed, slightly foveate on each side near anterior margin, and narrowly obliquely so near lateral margins; mesosternum with two short, broad, compressed tubercles, their apices acute; tegmina very thickly and finely punctate, about two and a half times as long as broad; posterior tibiæ with a single spine beyond middle.

Length excl. tegm. 9; exp. tegm. 20 millim.

Hab. Assam; Nága Hills (*Doherty*).

2319. **Cosmoscarta thoracica**, *Dist. Tr. E. S.* 1900, p. 680.

Head black; pronotum ochraceous, its anterior margin broadly, the lateral margins narrowly, and a very broad fascia between the lateral angles, sometimes divided centrally and not quite reaching the lateral angles, black; scutellum ochraceous, black at base; abdomen, body beneath, and legs ochraceous; basal area of face, lateral margins of prosternum, and apex of abdomen black; tegmina black, with three transverse ochraceous fasciæ, one at base, one about one-third from base, and the other before apical area; wings pale fuliginous; pronotum thickly and finely punctate, with two foveate impressions near anterior margin, and a narrower elongate impression near each lateral angle, lateral margins strongly reflexed; face with a broad central impunctate impression, the transverse impressions moderate; mesosternal tubercles compressed, obscure, non-prominent; rostrum reaching the intermediate coxæ; posterior tibiæ with a very short spine near base and a long spine before middle; tegmina a little more than twice as long as broad.

Length excl. tegm. 9; exp. tegm. 18 to 19 millim.

Hab. Trivandrum (*Brit. Mus.*).

2320. **Cosmoscarta taprobanensis**, *Atkins. J. A. S. B.* lvii, p. 333 (1888); *Melich. Hom. Faun. Ceylon*, p. 127, t. iv, f. 1 (1903).

Vertex of head, pronotum, and sternum black; centre of vertex, face, lateral margins and a transverse fascia to pronotum, scutellum and legs testaceous; abdomen testaceous, beneath with a double series of black spots on the lateral areas; tegmina piceous, basal third and a transverse fascia before apical area testaceous, the basal third containing a number of piceous spots; wings subhyaline, the veins darker; head finely transversely impressed in

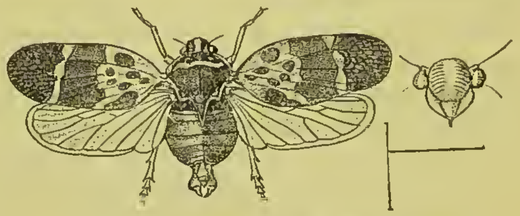

Fig. 100.—*Cosmoscarta taprobanensis.*

front of eyes; pronotum punctate and rugulose, centrally longitudinally carinate, irregularly foveate on each side before anterior margin, lateral margins reflexed: scutellum foveate at base; pronotum with two compressed tubercles, their apices subacute; rostrum reaching the intermediate coxæ; tegmina very thickly finely punctate, about two and a half times as long as broad.

Length excl. tegm. 7 to 9; exp. tegm. 21 to 23 millim.

Hab. Ceylon; Pundaluoya (*Green*), Karativu, Patipolla (*fide Melichar*).

2321. **Cosmoscarta inconspicua**, *Butl.* (Phymatostetha) *Cist. Ent.* i, p. 267 (1874); *Dist.* (Cosmoscarta) *Tr. E. S.* 1900, p. 682; *Melich.* (Phymatostetha) *Hom. Faun. Ceylon*, p. 128, t. iv, f. 3 (1903).

"Head above and thorax blue-black, rugulose, testaceous pubescent; head below, scutellum, abdomen, and legs testaceous; thorax with lateral anterior margins and two central spots, fulvous; scutellum crossed by a black spot, vertex crossed by regular series of black spots; pectus black; tegmina piceous, base irregularly testaceous, two irregular transverse bands dividing them into three equal parts, the inner one interrupted; wings slightly fuscescent." (*Butler.*)

"Length 9; exp. tegm. 21 millim."

Hab. Ceylon.

We have not yet received this species. It is allied to *C. taprobanensis*, from which it differs principally by the spotted pronotum, and by the absence of the pale black spotted basal area to the tegmina between the first fascia and base.

c. *Pronotum red or luteous.*

2322. **Cosmoscarta andamana**, *Dist. Tr. E. S.* 1878, p. 175; *Waterh. Aid Ident. Ins.* i, t. lviii (1880-82); *Atkins. J. A. S. B.* liv, p. 13 (1885).

Head (including face), pronotum, and scutellum sanguineous; sternum and abdomen above and beneath testaceous, disk of prosternum and the legs black; tegmina black, with the base and a transverse fascia before apical area but not reaching anterior margin, sanguineous; head transversely impressed in front of eyes; pronotum very finely and obscurely punctate, obscurely, centrally, longitudinally carinate on anterior half, transversely foveate on each side before anterior margin, the lateral margins reflexed;

Fig. 101.—*Cosmoscarta andamana.*

face somewhat broadly, longitudinally, centrally smooth between the lateral transverse striations which gives a somewhat foveate or sulcate appearance; mesonotum with two short, broad, compressed tubercles; rostrum reaching the intermediate coxæ; tegmina less than two and a half times as long as broad, posterior tibiæ with a single spine beyond middle.

Length excl. tegm. 9 to 9½; exp. tegm. 24 millim.

Hab. Andaman Islds. (*De Roepstorff*). Nicobar Islds. (*Rogers*). The species varies in the length of the subapical sanguineous fascia to the tegmina, sometimes not extending more than halfway across tegmen.

2323. **Cosmoscarta inclusa**, *Walk.* (Cercopis) *List Hom.* iii, p. 658 (1851); *Stål, Öfv. Vet.-Ak. Förh.* 1865, p. 147; *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 265 (1874); *Melich. Hom. Faun. Ceylon*, p. 125, t. iv, f. 5 (1903).

Head (including face) and pronotum testaceous-red; sternum, scutellum, and abdomen above and beneath black; legs piceous; tegmina piceous-black, with a transverse fascia before middle, connected with the base along costal and claval margins, sanguineous; wings fuliginous with about basal half sanguineous; head somewhat faintly impressed before eyes; pronotum very finely punctate, obscurely transversely wrinkled, centrally longitudinally sulcate on anterior half, transversely foveate on each side before anterior margin, lateral margins reflexed; face transversely striate, the striations only separated by a narrow longitudinal smooth median area; mesonotal tubercles somewhat conical; posterior tibiæ with a single strong spine beyond middle; tegmina very thickly and finely punctate, not quite two and a half times longer than broad.

Length excl. tegm. 14½ to 15; exp. tegm. 35 millim.

Hab. Ceylon; Kandy (*Green*), Madagoda, Balangoda, Gamaduwa, Nalanda, Matala, Anuradhapura (*fide Melichar*).

2324. **Cosmoscarta greeni**, *Atkins. J. A. S. B.* lvii, p. 334 (1888); *Melich. Hom. Faun. Ceylon*, p. 126, t. iv, f. 2 (1903).

"Head and eyes deep black, the head yellow-pilose; ocelli yellowish with red reflections; pronotum sordid orange-yellow, pilose, with two small impressions near the anterior margin, darker; metanotum black, margined ochreous; tegmina black, basal fourth of the posterior margin, basal third of the costal margin, and therefrom a transverse band proceeding somewhat obliquely towards the posterior streak and almost meeting it, also three spots arranged in a triangle in the apical third, and of which the cordiform apical is largest, red; wings semihyaline, basal third reddish-orange, rest fuscous; abdomen above black, with a narrow transverse basal band reddish-ochreous; pectus, venter, and legs black; venter with a reddish-ochreous band towards the base; last tibiæ sometimes sordid yellow." (*Atkinson.*)

Length 10; exp. tegm. 26 millim.

Hab. Ceylon; Pundaluoya (*Green*).

I have not received this species.

2325. **Cosmoscarta samudra**, sp. n.

Head (including face) black, eyes yellowish; pronotum testaceous-red, with a transverse black patch on anterior area behind eyes; scutellum testaceous with the apical area piceous; body beneath black, lateral marginal areas of prosternum testaceous-red; legs piceous-brown; abdomen above pale ochraceous, its apex piceous; tegmina black, the base, a transverse fascia near middle, and one beyond middle which centrally branches out into the apical area, sanguineous; wings hyaline, the base narrowly pale reddish; head transversely impressed before eyes; pronotum finely punctate and wrinkled, the lateral margins finely reflexed; face centrally, longitudinally, broadly flattened and smooth, the lateral areas finely striate; mesosternal tubercles subprominent; rostrum reaching the intermediate coxæ; posterior tibiæ with a short spine near base and a long spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 12; exp. tegm. 31 millim.

Hab. Burma (*Coll. Dist.*).

2326. **Cosmoscarta nycteis**, *Jacobi, Mt. Mus. Berlin*, iii, p. 14, t. i, f. 11 (1905).

Head black; pronotum dull sanguineous; a transverse patch on anterior area of pronotum behind eyes and the scutellum black; abdomen above, and body beneath and legs piceous, lateral margins of prosternum sanguineous; tegmina sanguineous, the apical area and a waved transverse fascia before it fuscous; wings pale fuliginous, the base, costal margin, and anal area narrowly, palely sanguineous; head transversely incised between front of eyes; pronotum thickly, finely punctate, obliquely transversely foveate on each side in the black anterior marginal patch, slightly obliquely foveate on each side near lateral angles, centrally longitudinally carinate on anterior half, centrally transversely impressed near anterior margin behind the ocelli, lateral margins reflexed; face transversely striate, broadly, smoothly, longitudinally, medially interrupted; mesosternal tubercles compressed, moderately prominent; rostrum reaching the intermediate coxæ; posterior tibiæ with a short spine near base and a strong spine a little beyond middle; tegmina a little more than twice as long as broad.

Length excl. tegm. 12 to 14: exp. tegm. 32 to 38 millim.

Hab. Assam (*Berlin and Brit. Muss.*).

2327. **Cosmoscarta nigrofasciata**, *Atkins. J. A. S. B.* lvii, p. 333, t. xv, lower left-hand figure (1888).

"Orange-yellow; two transverse bands on each tegmen, the one before the other in the middle, black; apex of tegmina finely reticulated blackish; pectus (except the lateral margins) and a

fine margin of the base of the segments of the abdomen above and beneath, black; feet yellow-ochreous; wings fuscous-hyaline." (*Atkinson.*)

Mesosternal tubercles broad, much compressed but prominently raised; rostrum not quite reaching the intermediate coxæ; tegmina two and a half times as long as broad.

"Long. 15; exp. tegm. 39 millim."

Hab. Sikhim; Mungphu (*Atkins. Coll.*, *Brit. Mus.*).

2328. **Cosmoscarta pallida**, *Walk.* (Cercopis) *List Hom.* iii, p. 657 (1851); *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 265 (1874); *Atkins. J. A. S. B.* liv, p. 12 (1885).

Cercopis ferruginea, *Walk. List Hom.* iii, p. 660 (1851).

Luteous; head either wholly luteous above or (excluding vertex) piceous; abdomen above and disk of mesosternum black; abdominal apex luteous; tegmina luteous, a marginal streak at base of clavus and a transverse fascia before apical area ochraceous, the ochraceous subapical fascia is sometimes broken into two spots; wings pale fuliginous, the base and costal margin very narrowly sanguineous; head transversely impressed in front of eyes; pronotum thickly finely punctate, obscurely transversely wrinkled, finely, centrally, longitudinally carinate on anterior half, transversely foveate on each side before anterior margin, lateral margins reflexed; face finely transversely striate, mesosternum with two prominent conical black tubercles; rostrum reaching the intermediate coxæ; posterior tibiæ with a strong spine beyond middle; tegmina two and a half times as long as broad.

Length excl. tegm. 9 to $9\frac{1}{2}$; exp. tegm. 29 to 32 millim.

Hab. Assam; Nága Hills (*Doherty*).

2329. **Cosmoscarta naiteara**, *Dist. Tr. E. S.* 1900, p. 668, t. ix, f. 1.

Head (including face), pronotum, scutellum, anterior femora, and bases of anterior and posterior tibiæ ochraceous; two small spots at base of head and inner margins of eyes, two rounded spots on anterior area of pronotum, apical area of scutellum (sometimes its whole surface), body and legs bluish-black; lateral margins of sternum ochraceous; tegmina piceous, the basal third ochraceous with the veins and a transverse spot on discoidal area piceous, a broken inwardly-directed macular ochraceous fascia at about one-third from apex; wings smoky hyaline; head transversely impressed in front of eyes; pronotum finely and obscurely wrinkled and punctate, longitudinally centrally carinate on anterior half, moderately foveate on each side before anterior margin, the foveations piceous or black, obliquely foveate near each lateral angle, the lateral margins reflexed; scutellum foveate at base, transversely wrinkled on lateral and apical areas; face globose and strongly wrinkled on apical area, medially, smoothly, narrowly, longitudinally impressed; mesosternal tubercles compressed, only moderately prominent; rostrum reaching the intermediate coxæ;

tegmina about two and a half times longer than broad; posterior tibiæ with a short spine near base and a long spine beyond middle.

Var. *a*. Tegmina with the basal ochraceous area only indicated by outer spots.

Var. *b*. Tegmina nearly wholly ochraceous, only apical fourth and two or three discal spots piceous.

Length excl. tegm. 15 to 17; exp. tegm. 40 to 48 millim.

Hab. Utakamand (*Atkins. Coll.*, *Brit. Mus.*). Malabar (*Coll. Dist.*).

2330. **Cosmoscarta relata**, *Dist. Tr. E. S.* 1900, p. 669.

Head (including face), pronotum and lateral margins of prosternum dull ochraceous; two duplex spots near anterior margin of pronotum, scutellum, abdomen, body beneath, and legs dark indigo-blue; anterior legs (excluding femoral bases) and the intermediate tibiæ brownish-ochraceous; tegmina black, a broken claval basal fascia connected with a much angulated transverse fascia crossing tegmen before middle, a basal costal fascia, a discal spot a little beyond base, and an angulated transverse fascia before apical area, not reaching costal margin, reddish-ochraceous; wings fuliginous, strongly sanguineous at base and costal area; pronotum finely wrinkled and punctate; lateral margins reflexed; face narrowly centrally sulcate, strongly laterally transversely striate; posterior tibiæ with a strong spine beyond middle; mesosternal tubercles broad, much compressed; rostrum about reaching intermediate coxæ; tegmina less than two and a half times longer than broad.

Length excl. tegm. 15; exp. tegm. 40 millim.

Hab. Karwar (*Atkins. Coll.*, *Brit. Mus.*). Central India, Bargur. Mysore; Hassan (*Lefroy*).

B. *Tegmina not transversely fasciated, apical area black, basal area generally more or less spotted.*

a. *Pronotum black, the margins red or ochraceous.*

2331. **Cosmoscarta raja**, *Dist. Tr. E. S.* 1900, p. 675.

Fig. 102.—*Cosmoscarta raja.*

Head (including face) and pronotum bluish-black, lateral margins

of the pronotum reddish-ochraceous; scutellum and abdomen above sanguineous; body beneath and legs pale sanguineous; anterior and intermediate tarsi piceous; tegmina sanguineous; apical area and six spots piceous, of the spots three oblique and narrower are near base, followed by a discal irregularly rounded spot, an outer oblique spot from costa, and a larger spot connected with the inner margin; wings very pale fuliginous, the base and costal margin very narrowly sanguineous; head transversely impressed before eyes; pronotum finely punctate, the lateral margins reflexed, obliquely foveate on each side before anterior margin; face strongly transversely impressed; mesosternal tubercles compressed, subprominent, rostrum reaching the intermediate coxæ; posterior tibiæ with a single spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 9 to 10; exp. tegm. 22 millim.

Hab. Assam; Margherita (*Doherty*).

2332. **Cosmoscarta rotundata**, *Walk.* (Cercopis) *List Hom. Suppl.* p. 174 (1858); *Stål, Öfv. Vet.-Ak. Förh.* 1865, p. 149; *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 260 (1874).

Head black, vertex and face testaceous-red; pronotum black, the lateral and posterior margins narrowly testaceous-red; abdomen above, body beneath, and legs testaceous-red; sternum (excluding prosternal lateral margins) and a double lateral series of spots to abdomen beneath, piceous; tegmina reddish-ochraceous, the apical area and six spots black, of these spots one transverse is in costal area near base, two beneath it, two in claval area, and the largest a little before apical area, curved, commencing near costa and terminating just before inner claval margin; wings pale fuliginous, the base very slightly and narrowly pale sanguineous; head finely transversely impressed before eyes; pronotum finely punctate, transversely impressed on each side before anterior margin, very finely centrally carinate on anterior half, obliquely foveate near each lateral angle; mesosternal tubercles compressed, moderately subacutely prominent; rostrum reaching the intermediate coxæ; posterior femora with a long spine beyond middle; tegmina broad, little more than twice as long as broad.

Length excl. tegm. 11; exp. tegm. 34 millim.

Hab. Sylhet (*Coll. Dist.*).—Siam (*Brit. Mus.*).

2333. **Cosmoscarta putamara**, *Dist. Tr. E. S.* 1900, p. 680.

Head, pronotum, and scutellum olivaceous-black; lateral and posterior margins of pronotum, lateral margins and apex of scutellum, abdomen, body beneath, and legs reddish-ochraceous; tegmina reddish-ochraceous, a discal spot at about one-third from base and the apical area black; wings pale fuliginous; head

transversely impressed in front of eyes; pronotum somewhat coarsely and thickly punctate, with two foveate impressions near anterior margin and a more elongate impression near each lateral angle, lateral margins reflexed; lateral areas of face transversely striate, but the disk broadly longitudinally smooth; mesosternal tubercles compressed, subprominent; rostrum not quite reaching intermediate coxæ; posterior tibiæ with a single spine beyond middle; tegmina not quite two and a half times as long as broad.

Length excl. tegm. 10; exp. tegm. 23 millim.

Hab. Malabar (*Coll. Dist.*).

b. *Pronotum ochraceous.*

2334. **Cosmoscarta tennanti**, *Dist. Tr. E. S.* 1900, p. 674; *Melich. Hom. Faun. Ceylon*, p. 128 (1903).

Head (including face), pronotum, scutellum, and lateral margins of pronotum ochraceous; abdomen above and beneath and sternum bluish-black; legs and apex of abdomen castaneous; tegmina with about basal third ochraceous, remaining area bluish-back, piceous towards apex, at about centre of the blackish area are two ochraceous spots, one above the other, the uppermost larger and prominently notched; head transversely impressed in front of eyes; pronotum very finely and obscurely punctate, prominently

Fig. 103.—*Cosmoscarta tennanti.*

longitudinally carinate on anterior half, obliquely foveate on each side near anterior margin, less and more obscurely so near each lateral angle, lateral margins reflexed; face transversely striate, somewhat narrowly longitudinally broken on disk; mesosternal tubercles compressed, subprominent; rostrum not quite reaching intermediate coxæ; posterior tibiæ with a single spine beyond middle; tegmina two and a half times as long as broad.

Length excl. tegm. 11; exp. tegm. 28 millim.

Hab. Ceylon (*Coll. Dist.*).

c. *Pronotum red or luteous, more or less spotted with black.*

2335. **Cosmoscarta flora**, sp. n.

Head (including face) testaceous-red; pronotum ochraceous, with a transverse central black fascia at anterior margin behind head; scutellum testaceous-red; abdomen above and beneath purplish-red; sternum ochraceous with the disk piceous; legs ochraceous or palely testaceous; tegmina ochraceous, the apical area and four spots black, of these spots one is subbasal beneath radial area, the other three in a curved discal transverse series; wings very pale fuliginous; head transversely impressed in front of eyes; pronotum very thickly and finely punctate, the lateral margins reflexed; face finely, laterally, transversely striate, centrally, longitudinally, smoothly interrupted; mesosternal tubercles compressed, not prominent; rostrum not reaching the intermediate coxæ; tegmina about two and a half times as long as broad.

Length excl. tegm. 11; exp. tegm. 25 millim.

Hab. Himalayas (*Coll. Dist.*).

2336. **Cosmoscarta dorsalis**, *Walk.* (Cercopis) *List Hom.* iii, p. 658 (1851); *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 260 (1874); *Atkins. J. A. S. B.* liv, p. 11 (1885).

Cercopis connexa, *Walk. List Hom.* iii, p. 663 (1851).

Cercopis ramosa, *Walk. Ins. Saund., Hom.* p. 85 (1858).

Head with the vertex piceous, the lateral areas sanguineous; pronotum piceous, the lateral margins and the disk sanguineous; sternum piceous; legs and abdomen testaceous-red; tegmina sanguineous, apical area and seven rounded spots—one at base, and three each in two curved transverse series, black, the black apical area is inwardly indented; wings hyaline, fuliginous on apical area; head transversely impressed before eyes; pronotum thickly finely punctate, obliquely foveate on each side before anterior margin, centrally longitudinally carinate to anterior half, lateral margins reflexed; mesosternal tubercles compressed, subprominent; rostrum about reaching intermediate coxæ; posterior tibiæ with a short spine at base and a strong spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 9 to 13; exp. tegm. 26 to 31 millim.

Hab. Kangra Valley (*Dudgeon*). Sikhim (*Indian Mus.*). Assam; Khási Hills (*Chennell*).

This species is variable in character; in some specimens the pronotum is testaceous-red with two transverse black spots near anterior margin, in others there are only six spots to tegmina, the basal one being obliterated.

2337. **Cosmoscarta bispecularis**, *White* (Cercopis), *A. M. N. H.* xiv, p. 426 (1844); *Stål, Stett. ent. Zeit.* xxii, p. 153 (1861); *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 259 (1874); *Atkins. J. A. S. B.* liv, p. 10 (1885).

Body beneath and legs testaceous-red; four black spots to pronotum, two smaller near anterior margin, and two very much larger and inwardly oblique on disk; sternum and a quadruple series of large spots to abdomen beneath, black; lateral margins of prosternum testaceous-red; tegmina pale testaceous-red, the apical area, six large rounded spots arranged in two transverse series and a longitudinal spot at base, black; wings pale fuliginous, the basal area narrowly sanguineous; head transversely impressed before eyes; pronotum thickly finely punctate, foveately impressed on each side near anterior margin, obliquely foveate near each lateral angle, centrally longitudinally carinate for almost its entire length, lateral margins reflexed; face transversely striate, narrowly, medially, longitudinally interrupted; mesosternal tubercles broad, compressed, subprominent; rostrum reaching the intermediate coxæ; posterior tibiæ with a short spine near base and a strong spine beyond middle; tegmina a little more than twice as long as broad.

Length excl. tegm. 11; exp. tegm. 24 to 25 millim.

Hab. "N. India" (*Brit. Mus.*). Assam (*Atkins. Coll.*).—Malay Peninsula.

C. *Tegmina not transversely fasciated, apical area ochraceous, basal area spotted.*

2338. **Cosmoscarta dorsimacula**, *Walk.* (Cercopis) *List Hom.* iii, p. 658 (1851); *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 259 (1874); *Atkins. J. A. S. B.* liv, p. 11 (1885).

Cercopis quadrimaculata, *Walk. List Hom.* iii, p. 661 (1851).

Body and legs testaceous-red; four spots to pronotum, the

Fig. 104.—*Cosmoscarta dorsimacula.*

smaller near anterior margin, the larger discal, metanotum, base of abdomen above, sternum (excluding lateral margins of prosternum), and a double longitudinal series of spots on each side of

abdomen beneath, black; tegmina testaceous-red, the apical area ochraceous, seven large black spots, six in two irregular transverse series, the seventh subapical and subcostal; wings pale bronzy; head transversely impressed before eyes; pronotum thickly, finely, obscurely punctate, two foveate impressions near anterior margin at the location of the two smaller black spots and an oblique foveation in each of the larger black spots; a fine central longitudinal carination on anterior half, the lateral margins reflexed; face transversely striate on each lateral area; mesosternal tubercles transverse, compressed, subprominent; rostrum about reaching the intermediate coxæ; posterior tibiæ with a short spine near base and a strong spine beyond middle; tegmina about twice as long as broad.

Length excl. tegm. 13 to 15; exp. tegm. 36 to 38 millim.

Hab. Kangra Valley (*Dudgeon*). Mussooree (*Mackinnon*). Sikhim; Darjiling, Kurseong (*Annandale*). Assam; Nága Hills (*Doherty*).

2339. **Cosmoscarta fictilis**, *Butl. Cist. Ent.* i, p. 259 (1874); *Atkins. J. A. S. B.* liv, p. 11 (1885).

Butler thus describes this species:—"Closely allied to *C. dorsimacula*, but differs in its usually smaller size, narrower thorax, duller and more uniform colouring and much smaller and more regularly uniform black spots."

The colour of the tegmina and body is ochraceous, not testaceous-red; the seventh subapical black spot to tegmina is frequently obliterated and so also are sometimes the two posterior spots to the pronotum. It is of doubtful specific value and may prove to be but a colour variety of *C. dorsimacula*.

Length excl. tegm. 11 to 12; exp. tegm. 32 millim.

Hab. Assam; Khási Hills (*Chennell*), Nága Hills (*Doherty*).—Penang (*Brit. Mus.*).

2340. **Cosmoscarta septempunctata**, *Walk.* (Cercopis) *List Hom.* iii, p. 659 (1851).

Cosmoscarta bifasciata, *Butl.* (part.) *Cist. Ent.* i, p. 259 (1874).
Cercopis fulva, *Walk. List Hom.* iii, p. 663 (1851).

Body and legs testaceous-red; mesosternal tubercles, a double series of large spots on each side of abdomen beneath and sometimes two small spots near anterior margin of pronotum, black; tegmina testaceous-red, the apical area ochraceous, with six spots arranged in two irregular transverse series, sometimes with a seventh subapical and subcostal spot, black; wings pale fuliginous; head transversely impressed in front of eyes; pronotum thickly, finely and obscurely punctate, transversely foveate on each side behind anterior margin and longitudinally so near each lateral angle, centrally longitudinally carinate on anterior half, lateral margins moderately reflexed; mesosternal tubercles broad, compressed, subprominent; rostrum reaching the intermediate coxæ;

apices of tibiæ and tarsi black; posterior tibiæ with a short spine near base and a strong spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 10 to 11; exp. 28 to 31 millim.

Hab. Sikhim; Sookna, Tindharia, Rungtong, Somdrigal (*Indian Mus.*); Dani Dim (*Indian Mus.*). Assam; Shillong, Margherita. Burma; Bhamo (*Fea*), Momeit, Ruby Mines (*Doherty*).

2341. **Cosmoscarta menaca,** *Dist. Tr. E. S.* 1900, p. 677.
Cosmoscarta octopunctata, *Atkins.* (*nec Amy. & Serv.*) *J. A. S. B.* lvii, p. 334, t. xv, lower right-hand figure (1888).

Ochraceous; metanotum, fourth and fifth abdominal segments above and sometimes the base of the third, sternum and basal areas of the abdominal segments beneath, black; lateral margins of the prosternum ochraceous; legs ochraceous, intermediate and posterior femora more or less black; tegmina ochraceous with five black spots, two in clavus and three discal, sometimes with a sixth subapical and subcostal, or again with only one in claval area; wings very pale bronzy; head transversely impressed before eyes; pronotum dilated on each side, the lateral angles rounded, very finely and obscurely pilose and punctate, the lateral margins broadly reflexed, centrally longitudinally carinate on anterior half, transversely, subtriangularly foveate on each side before anterior margin; mesosternal tubercles conically prominent; rostrum reaching the intermediate coxæ; posterior tibiæ with a short spine near base and a more robust spine beyond middle; tegmina about three times as long as broad.

Length excl. tegm. 15 to 17; exp. tegm. 40 to 44 millim.

Hab. Assam; Khási Hills (*Chennell*).—Dinding Isld. Borneo.

This species is allied to the Javan *C. octopunctata*, Amy. & Serv., and is at once separated from the three preceding species by the dilated pronotum.

D. *Tegmina black, spotted with ochraceous.*

2342. **Cosmoscarta trimacula,** *Walk.* (Monecphora) *List Hom.* iii, p. 682 (1851); *Atkins. J. A. S. B.* liv, p. 113 (1885); *Dist.* (Cosmoscarta) *Tr. E. S.* 1900, p. 683.

Head, pronotum and scutellum shining black; abdomen above and body beneath piceous; legs brownish-ochraceous; tegmina black with three greyish-white or ochraceous spots arranged in longitudinal series, one at extreme base, another before middle and the third immediately before the apical reticulate area; wings sordidly greyish, the veins fuscous; head transversely incised in front of eyes; pronotum thickly finely punctate, transversely foveate on each side before anterior margin, obliquely foveate near each lateral angle, lateral margins strongly reflexed; scutellum foveate near base; face transversely striate, the disk broadly

longitudinally smooth and slightly depressed; mesosternal tubercles subprominent; rostrum reaching the intermediate coxæ; body beneath finely pilose; posterior tibiæ with a strong spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 7; exp. tegm. 17 to 18 millim.

Hab. Bombay (*Leith & Dixon*).

A small and very distinctly marked species.

E. *Tegmina black or piceous, only more or less spotted near base.*

2343. **Cosmoscarta tricolor**, *St. Farg. & Serv.* (Cercopis) *Enc. Méth.* x, p. 604 (1825); *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 245 (1874); *Dist. J. A. S. B.* xlviii (2) p. 40, t. xi, f. 5 (1879); *Atkins. J. A. S. B.* liv, p. 6 (1885).

Var. Head (including face) and body above testaceous-red; some small spots on each side of pronotum near anterior margin, lateral fasciæ to the abdomen above and base of scutellum black; body beneath black; lateral margins of prosternum, legs and margins of abdominal segments testaceous-red; intermediate and posterior femora (excluding apices) black; tegmina black, with base of clavus and four spots in irregular transverse series a little beyond base, sanguineous; wings fuliginous, extreme base

Fig. 105.—*Cosmoscarta tricolor*, var.

sanguineous, and with two pale greyish longitudinal lines in radial area; head transversely impressed in front of eyes; pronotum finely wrinkled and punctate, longitudinally carinate on anterior half, lateral margins broadly reflexed; face transversely striate on lateral areas, centrally, broadly, longitudinally smooth; mesosternal tubercles broad, compressed, subconically acute; posterior tibiæ with a strong spine beyond middle; tegmina rather more than two and a half times as long as broad.

Differs from the typical form of *C. tricolor* in having the basal spots to the tegmina sanguineous, rather than stramineous or ochraceous, and in the more testaceous colour of the pronotum.

Length excl. tegm. 19 to 20; exp. tegm. 45 to 48 millim.

Hab. Tenasserim; Moolai (*Limborg*), Myitta (*Doherty*).—Sumatra; Java; Borneo.

The specimens from Tenasserim represent the varietal form (*supra*); those from the Malayan Islands are typical.

2344. **Cosmoscarta basinotata**, *Butl. Cist. Ent.* i, p. 245 (1874).

This is a closely allied species to *C. tricolor*, and principally differs in the following characters:—The abdomen above is black, with the segmental margins testaceous-red and a central longitudinal series of small testaceous-red segmental spots, the apical segment is ochraceous; the tegmina are spotted as in *C. tricolor*, but the spots are ochraceous; the tegmina are a little narrower and more apically pointed.

It is questionable whether this may not prove to be another varietal form of *C. tricolor*, with which, as Butler writes, it was formerly associated in the National Museum; however, I possess a long series of both and the markings are at least constant.

Length excl. tegm. 21; exp. tegm. 47 millim.

Hab. Tavoy (*Brit. Mus.*).—Malay Peninsula; Borneo.

2345. **Cosmoscarta siamensis**, *Butl. Cist. Ent.* i, p. 245, t. viii, f. 1 (1874); *Atkins. J. A. S. B.* lv, p. 193 (1886).

Head (including face), pronotum and scutellum luteous; abdomen above, body beneath and legs black; lateral margins of prosternum luteous; tegmina black, base of costal area connected with a transverse basal spot sanguineous; wings dark fuliginous; head transversely impressed in front of eyes; pronotum thickly finely punctate, foveate on each side before anterior margin, longitudinally so near each lateral angle, finely longitudinally carinate on anterior half, lateral and posterior margins reflexed; face transversely striate, the striations only interrupted by a central longitudinal narrow smooth space; mesosternal tubercles somewhat conically prominent; rostrum reaching the intermediate coxæ; posterior tibiæ with a strong spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 11 to 18; exp. tegm. 34 to 42 millim.

Hab. Andaman Islands (*de Roepstorff*).—Cambodia, Laos (*Brit. Mus.*).

I possess four specimens of this species from the Andaman Islands. The specimens on which Butler founded the species were collected in Cambodia and Laos by Henri Mouhot.

2346. **Cosmoscarta pronotalis**, sp. n.

Body above and beneath black; legs piceous; pronotum with a large, sanguineous, central undulating fascia which occupies the lateral areas and forms two discal sub-obconical spots; lateral margins of prosternum sanguineous; tegmina black, bases of

costal and elaval areas sanguineous; wings very pale fuliginous, extreme base and bases of costal and anal areas pale sangineous; head transversely impressed in front of eyes; pronotum finely punctate and slightly wrinkled, foveately impressed on each side behind eyes and obliquely foveate near each lateral angle, centrally longitudinally earinate on anterior half; scutellum broadly depressed at base, remaining area transversely wrinkled; mesosternal tubercles subprominent; rostrum reaching the intermediate eoxæ; faee transversely striate, somewhat broadly, medially, longitudinally interrupted; posterior tibiæ with a short spine at base and a strong spine beyond middle; tegmina two and a half times as long as broad.

Length excl. tegm. 11; exp. tegm. 33 millim.

Hab. Assam (*Atkinson Coll.*, *Brit. Mus.*).

2347. **Cosmoscarta fulviceps**, *Dall.* (Cercopis), *Tr. E. S.* 1850, p. 10; *Dist.* (Cosmoscarta) *Tr. E. S.* 1900, p. 682.
Cercopis nigripennis, *Walk.* (*nec Fabr.*) *List Hom.* iii, p. 653 (1851).
Cosmoscarta megamera, *Butl. Cist. Ent.* i, p. 246, t. viii, f. 3 (1874); *Atkins. J. A. S. B.* liv, p. 7 (1885).

Head (ineluding face) and pronotum luteous; scutellum pieeous; abdomen above and body beneath bluish-black; legs pieeous; lateral margins of prosternum luteous; tegmina blaek, with a short sanguineous basal streak to elavus; wings fuliginous, base and eostal area very narrowly sanguineous; head transversely impressed in front of eyes; pronotum thiekly and very finely punctate, with three transverse foveations before anterior margin, one central, the others behind it on eaeh side, more obscurely obliquely foveate near each lateral angle, lateral and posterior margins reflexed; face transversely striate, the striations only interrupted by a smooth medial longitudinal line; mesosternal tubereles eompressed, moderately angularly prominent, posterior tibiæ with a short spine near base and a long spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 14 to 16; exp. tegm. 38 to 44 millim.

Hab. Sikhim; Darjiling (*Coll. Dist.*); Bhutan (*Brit. Mus.*). Assam; Shillong (*Indian Mus.*), Margherita and Nága Hills (*Doherty*), Khási Hills (*Chennell*). Burma; Bhamo (*Fea*); Upper Tenasserim (*Limborg*).—Malay Peninsula; Siam; Hong Kong.

2348. **Cosmoscarta moorei**, *Dist. Tr. E. S.* 1878, p. 321; *Atkins. J. A. S. B.* liv, p. 7 (1885).

Blaek, shining, irregularly pilose; tegmina thiekly and finely punctate with the base, *both above and below*, earmine-red, this coloration eonsists of a narrow straight subeostal streak of about 3 millim. in length and a broader elaval streak of about the same length, gradually rounded and narrowed at its terminaton; wings fuscous, eostal edge for about half the length narrowly tinged

with carmine; face transversely striate with a distinct central longitudinal impression; eyes luteous; pronotum with a central longitudinal carination on its anterior half; posterior margins of scutellum, metanotum and abdominal segments, apex and lateral margins of abdomen, carmine; anterior legs dull reddish; posterior tibiæ armed with a strong spine beyond middle; intermediate legs piceous; mesosternum with two very large, thick, conical teeth.

Length excl. tegm. 13; exp. tegm. 35 millim.

Hab. Sikhim.

The above description refers to a single specimen in the collection of the late Frederic Moore.

F. *Tegmina black or piceous; greater part of costal area luteous.*

2349. **Cosmoscarta fuscipennis**, *St. Farg. & Serv.* (Cercopis) *Enc. Méth.* x, p. 605 (1825); *Stål* (Cosmoscarta), *Hem. Fabr.* ii, p. 11 (1869); *Butl. Cist. Ent.* i, p. 246 (1874); *Atkins. J. A. S. B.* liv, p. 7 (1885).

Cercopis plana, *Walk. List Hom.* iii, p. 653 (1851).

Cosmoscarta lurida, *Atkins. J. A. S. B.* lvii, p. 335 (1888).

Head (including face), pronotum, legs and lateral margins of pronotum luteous; scutellum and abdomen above purplish-black; body beneath and posterior femora piceous; tegmina black, basal two-thirds of costal area luteous, sometimes base and claval area more faintly of the same colour; wings fuliginous with the veins piceous; head faintly transversely impressed in front of eyes; pronotum thickly finely punctate, three moderate transverse foveations before anterior margin, one central, the other two behind it on each side and each of the latter containing one or two small black spots, lateral and posterior margins reflexed; mesosternal tubercles compressed and broadly acute; rostrum reaching the intermediate coxæ; posterior tibiæ with a long spine beyond middle; tegmina less than two and a half times as long as broad.

Length excl. tegm. 12 to 14; exp. tegm. 31 to 40 millim.

Hab. Malabar (*fide Atkinson*).—Malay Peninsula and some islands of the Malayan Archipelago.

G. *Tegmina uniformly tawny or testaceous.*

2350. **Cosmoscarta leonina**, sp. n.

Head (including face) and pronotum ochraceous; abdomen above and beneath violaceous-black; scutellum, mesonotum, sternum and legs castaneous; lateral margins of prosternum ochraceous; tegmina tawny-brown, slightly ochraceous at base of clavus; wings pale fuliginous, basal area narrowly fuscous; head transversely impressed at front of eyes; pronotum thickly finely punctate, foveately impressed on each side near anterior margin, obliquely foveate near each lateral angle, slightly longitudinally carinate on

anterior half, lateral margins strongly reflexed; scutellum transversely wrinkled, foveate at base; face transversely striate, narrowly, longitndinally, medially interrupted; rostrum reaching the intermediate coxæ; mesosternal tubercles obtusely prominent; posterior tibiæ with a prominent spine beyond middle; tegmina about two and a half times as long as broad; legs somewhat longly pilose.

Length excl. tegm. 16; exp. tegm. 45 millim.

Hab. Upper Burma; Maymyo (*Bingham*, *Brit. Mus.*).

2351. **Cosmoscarta affinis**, *Atkins.* (Callitettix) *J. A. S. B.* lvii, p. 336 (1888); *Dist.* (Cosmoscarta) *Tr. E. S.* 1900, p. 683.

Body black; lateral and posterior margins of pronotum, scutellum, posterior area of face, anal segment of abdomen and the legs testaceous-red; tegmina pale testaceous, the apical margin black; wings very pale fuliginons; head transversely impressed before eyes; pronotum rugulosely punctate, centrally longitudinally carinate throughout its entire length, foveate on each side before anterior margin and centrally transversely impressed near anterior margin, the lateral margins reflexed; scutellum strongly foveate on basal area; face transversely striate, centrally broadly longitudinally smooth and slightly depressed; mesosternal tubercles compressed, broadly subacute; rostrum reaching the intermediate coxæ; posterior tibiæ with a slender spine beyond middle; tegmina a little more than twice as long as broad.

Length excl. tegm. $8\frac{1}{2}$; exp. tegm. 22 to 23 millim.

Hab. Ceylon; Pundaluoya (*Green*).

H. *Tegmina uniformly black or piceous.*

2352. **Cosmoscarta funeralis**, *Butl. Cist. Ent.* i, p. 247, t. viii, f. 4 (1874); *Atkins. J. A. S. B.* liv, p. 7 (1885); *Bredd. Deutsche ent. Zeitschr.* 1903, p. 86.

Head (including face) and pronotum dark castaneous; scutellum and metanotum piceous; abdomen above pale sanguineons; body beneath and legs pale testaceons, abdominal segments transversely banded and laterally spotted with black, apices of femora sometimes piceous; tegmina piceous or black; wings fuliginons; head transversely impressed in front of eyes; pronotum thickly, very finely punctate, with a faint longitudinal carination on anterior half, transversely foveate on each side before anterier margin, lateral margins reflexed; mesosternal tubercles compressed and broadly prominently acute; rostrum reaching the intermediate coxæ; posterior tibiæ with a long spine beyond middle; tegmina less than two and a half times as long as broad.

Length excl. tegm. 12 to 15; exp. tegm. 33 to 43 millim.

Hab. Assam; Khási Hills.—Malay Peninsula; Perak (*Doherty*).

2353. **Cosmoscarta nigra,** *Atkins. J. A. S. B.* lvii, p. 335 (1888).

Head, pronotum, scutellum and sternum black; abdomen bluish-black; legs piceous; tegmina piceous-black; wings pale fuliginous; head transversely impressed in front of eyes; pronotum finely obscurely punctate, foveate on each side before anterior margin, obliquely foveate near each lateral angle, lateral margins reflexed; scutellum transversely striate; mesosternal tubercles prominent, subacute; rostrum about reaching the intermediate coxæ; posterior tibiæ armed with a strong spine beyond middle tegmina not quite two and a half times as long as broad.

Length excl. tegm. 11; exp. tegm. 34 millim.

Hab. Sikhim (*fide Atkinson*); Dunsiri Valley (*Coll. Dist.*).

2354. **Cosmoscarta hyalinipennis,** sp. n.

Head black, vertex and face dull castaneous; pronotum black, the lateral margins very narrowly dull castaneous; scutellum castaneous, more piceous at base; abdomen black, the segmental margins and anal segment castaneous; sternum black, its lateral margins and the legs castaneous, the latter more or less suffused with piceous; tegmina black; wings pale fuliginous, hyaline, the base narrowly testaceous; head transversely impressed in front of eyes, the ocelli ochraceous; pronotum thickly finely punctate, foveately impressed on each side before anterior margin, obliquely foveate near each lateral angle, lateral margins moderately reflexed; scutellum transversely depressed at base; mesosternal tubercles only moderately prominent; rostrum reaching the intermediate coxæ; posterior tibiæ with a long spine beyond middle; tegmina about two and a half times as long as broad.

Length excl. tegm. 14; exp. tegm. 34 millim.

Hab. Darjiling (*Coll. Dist.*).

2355. **Cosmoscarta viridans,** *Guér.* (Cercopis) *Voy. Bélang. Ind. Orient.* p. 501, *Atlas*, t. iii, f. 7 *a* (1834); *Butl.* (Cosmoscarta) *Cist. Ent.* i, p. 249 (1874); *Atkins. J. A. S. B.* liv, p. 8 (1885).
Cercopis latissima, *Walk. List Hom.* iii, p. 655 (1851).

Head, pronotum, scutellum and body beneath shining black; abdomen above shining violaceous-black, its posterior lateral margins, anal segment and legs reddish-testaceous; tegmina brilliant shining black; wings somewhat dark fuliginous; eyes pale ochraceous; head transversely impressed between eyes; pronotum with the lateral margins obliquely straight, not convex, foveately impressed on each side before anterior margin, obliquely impressed near each lateral angle, lateral margins reflexed; scutellum transversely wrinkled; mesosternal tubercles conically produced; rostrum reaching the intermediate coxæ; face strongly transversely striate, narrowly centrally interrupted; posterior tibiæ with a strong spine beyond middle; tegmina two and a half

times as long as broad, their apices narrowed, costal margin strongly arched at base.

Length excl. tegm. 17 to 19; exp. tegm. 48 to 54 millim.

Hab. Coromandel Coast (*fide Guérin*).—Java; Sumatra.

2356. **Cosmoscarta masoni**, *Dist. J. A. S. B.* xlvii, p. 194 (1878); *id. tom. cit.* xlviii, p. 40, t. ii, f. 6 (1879); *Atkins. J A. S. B.* liv, p. 8 (1885).

Head (including face) very pale testaceous; pronotum stramineous, with a transverse subquadrate black spot at anterior margin behind head; scutellum, abdomen, body beneath and legs shining black, legs somewhat piceous, lateral margins of the prosternum stramineous; tegmina black, their apical areas sometimes fuscous-brown; wings fuliginous; head strongly transversely impressed in front of eyes; pronotum with the lateral margins reflexed, nearly obliquely straight, not convex, the lateral angles very strongly and acutely produced, centrally longitudinally carinate on anterior area, foveately impressed on each side of the anterior black patch; face robustly tumid, transversely strigose, with a central impunctate longitudinal impression; mesosternal tubercles subconically produced; rostrum reaching the intermediate coxæ; posterior tibiæ with a strong spine beyond middle; tegmina not quite two and a half times longer than broad.

Length excl. tegm. 17; exp. tegm. 45 millim.

Hab. Tenasserim; Taoo (*Limborg*), Myitta (*Doherty*).—Malay Peninsula; Pahang (*Craddock*). Borneo; Kina Balu (*Whitehead*).

Family JASSIDÆ.

Tettigoniidæ, *Fitch, Homop., Fourth Ann. Rep. N.Y. State Cab. Nat. Hist.* p. 55 (1851).
Jassida, *Stål* (part.), *Hem. Afr.* iv, p. 82 (1866).
Subfam. Jassida, *Stål, tom. cit.* pp. 83 & 99 (1866).
Jassidæ, *Fieb. Verh. zool.-bot. Ges. Wien,* xvi, p. 500 (1866); *Osborn & Ball, Iowa Ac. Sci.* iv, p. 172 (1897).
Jassides, *Sign. Ann. Soc. Ent. Fr.* 1879, p. 47.
Jassoidea, *Van Duzee, Trans. Am. Ent. Soc.* xix, p. 296 (1892).

The always more or less closely spinulose condition of the posterior tibiæ is a character alone sufficient to distinguish the members of this very large and, as regards most tropical regions, little known family. Those of the Palæarctic and Nearctic Regions are now fairly well known. The Jassidæ of Central America will receive adequate treatment in the pages of the 'Biologia Centrali-Americana.' As regards South America, the Ethiopian and Australasian Regions, and the islands of the Malay Archipelago, our knowledge as regards this family is still small and fragmentary. An attempt is here made to describe the genera and species found in British India. Atkinson writing in 1886, remarked that "the number of Jassidæ alone awaiting examination should add several hundred species to our Indian fauna"; and this forecast was not an exaggerated one.

My work with the Indian Jassidæ is naturally that of the pioneer. I recognize the difficulties and dangers in such an enumeration. Many genera and species are so widely distributed, that some synonymy will probably be discovered by Jassid specialists who have worked at other faunas, while a still greater difficulty exists in the recognition of sexual dimorphism. I have worked at the large material which has passed through my hands without the aid of field-notes or the observations of economic entomologists, and therefore cannot expect to have avoided mistakes where the sexes are so diverse as we know them to be, in some instances, in our own fauna. The adjustment of such differences must be left to the observations of the able economic entomologists now holding appointments in British India.

Great difference of opinion still exists as to the subfamilies in which many genera should be placed. I have followed in the main the excellent work of Mr. Van Duzee in the classification of the Jassidæ, adding in some instances the different taxonomical views of other workers. This, however, is a very healthy sign, and the study is frequently more advanced by the different propositions in classification, when they are proposed on special reasons, than is the case when a canon is claimed for an individual arrangement, as has been done for the Capsidæ with disastrous results in retarding a knowledge of that family.

Synopsis of Subfamilies.

A. Veins at base of tegmina distinctly visible, on corium more or less branched and connected by transverse veins; ocelli rarely absent.
  a. Posterior tibiæ four-cornered, armed with numerous spines, the outer edge usually more or less expanded and foliaceous; ocelli of variable position, but in all the genera at present known from British India, placed on disk of vertex ...... *Ledrinæ.*
  b. Posterior tibiæ more or less cylindrical and slender, and densely spinulose.
    a. Ocelli on the face, below the anterior margin of the head .... *Bythoscopinæ.*
    b. Ocelli placed on disk of vertex.
      a′. Face large, prominent, strongly convex, cheeks long and narrow, anterior edge of the head obtuse or rounded.................... *Tettigoniellinæ.*
      b′. Face flat, or slightly convex, more or less impressed across the base, beneath the prominent and acute, or rounded and overhanging anterior edge of the head; cheeks at least moderately expanded .... *Gyponinæ.*
    c. Ocelli placed superiorly close to the anterior edge of the head .... *Acocephalinæ.*
    d. Ocelli on the anterior edge of the head or wanting.... .... *Jassinæ.*
B. Veins at base of tegmina indistinct, not forked on corium; transverse veins absent till before tip, from which spring terminal veins; ocelli rarely distinct .... *Typhlocybinæ.*

Subfam. I. LEDRINÆ.

Ledrina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 731.
Scarida, *Fieb. Rev. Mag. Zool.* (3) iii, p. 386 (1875).
Ledridæ, *Van Duzee, Trans. Am. Ent. Soc.* xix, p. 296 (1892).
Stenocotinæ, *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 368 (1906).

Head broad, moderately foliaceous; face concave or somewhat convex, horizontal or strongly reclined, lateral margins towards middle or a little before middle distinctly or profoundly sinuate, not or only slightly dilated; vertex narrow, depressed or

moderately convex; clypeus or apex of face narrowly produced; antennæ long, inserted beneath the anterior margin of tho head, remote from eyes; ocelli of variable position.

I agree with Kirkaldy in considering this subfamily as defined by Stål "heterogeneous," but I cannot follow him in the attempt to make a new subfamily "Stenocotinæ" simply on the position of the ocelli, Stål having already given the character "ocelli of variable position."

Synopsis of Genera.

A. Scutellum plain, not elevated.
- *a*. Posterior tibiæ not foliaceously dilated.
  - *a'*. Lateral pronotal areas angularly dilated. TITURIA, p. 159.
  - *b'*. Lateral pronotal areas not dilated.
    - a^2. Pronotum neither prominently sulcate nor ridged.
      - a^3. Vertex of head more or less flat, not prominently deflected on each side, narrowed and more or less angulate anteriorly .... PETALOCEPHALA, [p. 162.
      - b^3. Vertex of head prominently deflected on each side.
        - a^4. Vertex of head about as long as breadth between eyes .... CONFUCIUS, p. 178.
        - b^4. Vertex of head much longer than breadth between eyes .. LEDROPSIS, p. 180.
    - b^2. Pronotum either strongly sulcate or ridged.
      - a^3. Pronotum centrally longitudinally sulcate .... EZRANA, p. 177.
      - b^3. Pronotum centrally strongly ridged. CHATURA, p. 176.
- *b*. Posterior tibiæ foliaceously dilated ...... LEDRA, p. 171.

B. Scutellum laminately elevated............ ELEAZARA, p. 182.

Genus TITURIA.

Tituria, *Stål, Öfv. Vet.-Ak. Förh.* 1865, p. 158; *id. Hem. Afr.* iv p. 102 (1866); *Atkins. J. A. S. B.* liv, p. 96 (1885).

Type, *T. planata*, Fabr.

Distribution. Ethiopian, Oriental and Eastern Palæarctic Regions.

Body large, oblong; head foliaceous, clypeate, triangular, apex rounded, produced forward and a little downward, vertex flat; face beneath the eyes suddenly narrowed, thence more gradually narrowed, margins slightly amplified; eyes small; ocelli placed behind the middle of the vertex, nearer to each other than to eyes; pronotum and vertex in the same plane, somewhat sloping anteriorly; pronotum sexangular, the lateral areas angularly produced, anterior margin straight, posterior margin moderately sinuate; scutellum triangular; tegmina coriaceous, densely punctate, reaching apex of abdomen; clavus medially very broad,

irregularly reticulate towards the apex; legs somewhat short, anterior coxæ free, posterior tibiæ remotely dentate above.

Amyot & Serville (Hém. p. 577 (1843)), give as a representative of their genus *Epiclines* the *Ledra planata*, Fabr. As, however, Stål pointed out, the character they gave for that genus, "Prothorax incliné presque verticalement," shows that *Epiclines*=the American genus *Proranus*, Spin., and that *planata*, Fabr. cannot be included therein. *Epiclines* is included by Berg in his subfamily *Gyponina* (Hem. Argent. p. 257 (1879)), a course followed by Fowler.

a. *Head about half as long as space between eyes.*

2357. **Tituria planata**, *Fabr.* (Membracis) *Ent. Syst.* iv, p. 11 (1794); *id.* (Ledra) *Syst. Rhyng.* p. 25 (1803); *Amy. & Serv.* (Epiclines) *Hém.* p. 578 (1843); *Stål* (Petalocephala), *Öfv. Vet.-Ak. Förh.* 1862, p. 501; *id.* (Tituria) *Hem. Fabr.* ii, p. 59 (1869); *Atkins.* (part.) *J. A. S. B.* liv, p. 96 (1885).
Petalocephala expansa, *Stål, Öfv. Vet.-Ak. Förh.* 1865, p. 158.*

Virescent, ochraceous in faded specimens; lateral margins of head and pronotum (narrowly) and basal angles to scutellum testaceous; eyes black, ocelli red; head beneath, sternum and legs virescent; coxæ and abdomen beneath brownish-ochraceous; tegmina with the costal margin narrowly sanguineous; vertex of head thickly punctate, centrally longitudinally carinate, anteriorly

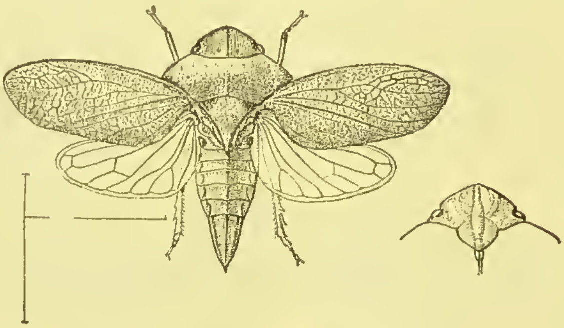

Fig. 106.—*Tituria planata.*

subangulate; pronotum finely rugulose and punctate, the lateral areas broadly angularly produced, the angles posteriorly a little margined with black; tegmina thickly punctate, more coarsely so on clavus, much less thickly on apical costal area; tarsi infuscated.

Length excl. tegm. ♂ & ♀ 15 to 18; exp. pronot. angl. 9 to 10; exp. tegm. 31 to 34 millim.

* Atkinson (*supra*) included the Javan species *Epiclines hebes*, Walk. as a synonym of *T. planata*, but in error.

Hab. Calcutta (*Ind. Mus.*). Runtong, Darjiling; Ialaijuri, Utakamand (*Brit. Mus.*). Tenasserim (*Brit. Mus.*).—Cambodia (*Mouhot*).

2358. **Titturia acutangulata**, sp. n.

Body and legs ochraceous (probably green in fresh specimens); lateral margins of vertex of head testaceous; posterior margins of pronotal angles broadly dark castaneous, the extreme edge black; tegmina virescent, costal, apical, and interior claval margins ochraceous, posterior claval margin of a purplish tint, a small black discal spot near middle; wings subhyaline, the venation

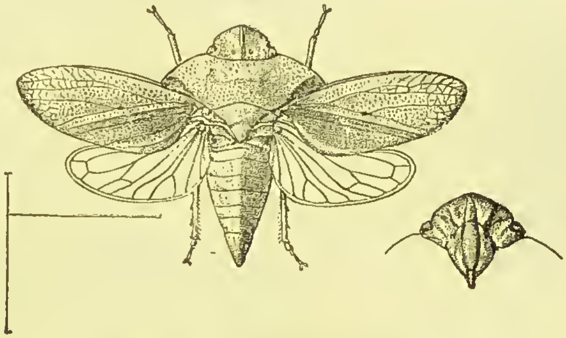

Fig. 107.—*Titturia acutangulata*, ♀.

more or less ochraceous; head and pronotum somewhat thickly finely punctate; vertex about half as long as space between eyes, anteriorly obtusely angulate; pronotum with the lateral angles strongly acute, angularly produced, their apices a little recurved; tegmina thickly coarsely punctate.

Length excl. tegm. ♂ & ♀ 11 to 18; exp. tegm. 20 to 36; exp. pronot. angl. 8 to 13 millim.

Hab. "N. India" (*Brit. Mus.*). Nilgiri Hills (*Hampson*).—Java (*Horsfield*, *Brit. Mus.*).

2359. **Titturia assamensis**, sp. n.

Head, pronotum, scutellum, body beneath and legs virescent, lateral margins of head and pronotum narrowly purplish-red; tegmina virescent, the claval area pale purplish; scutellum dark virescent at base, the apex purplish-red; head in length a little more than half the breadth between eyes, obliquely rounded in front, thickly finely punctate, not centrally carinate; pronotum finely thickly punctate, finely obscurely transversely striate, the lateral areas broadly angularly, but only moderately, produced; clavus very thickly and coarsely punctate, remainder of tegmina,

excluding apical area, thickly punctate, inner margin of tegmina beyond clavus castaneous.

Length incl. tegm. 11; exp. pronot. angl. 5½ millim.

Hab. Assam; Dibrughur (*Brit. Mus.*).

A small species to be recognized by the only moderately dilated lateral pronotal areas and by the colour of the claval area to the tegmina.

b. *Head about as long as space between eyes.*

2360. **Tituria cuneata**, sp. n.

♀. Virescent; vertex with the basal half of central carination and the eyes black; lateral margins of pronotum narrowly black; face centrally pale sanguineous; vertex about as long as pronotum, very thickly and finely punctate, strongly centrally longitudinally carinate, lateral margins gradually narrowed from eyes to apex; pronotum more coarsely punctate than vertex, the lateral margins broadly angularly produced on each side; scutellum transversely striate; tegmina thickly punctate, much less so on apical area.

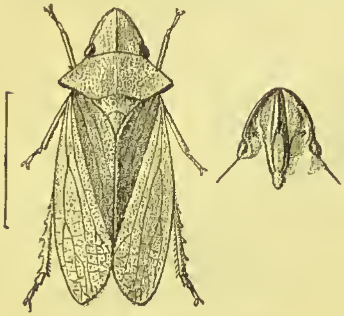

Fig. 108.—*Tituria cuneata.*

Length incl. tegm. 15; exp. pronot. angl. 6 millim.

Hab. Burma; Ruby Mines (*Doherty*).

By the long and narrow vertex and pronotum this species is most nearly allied to the Bornean *T. obliqua*, Walk.; it is by the somewhat intermediate character of this Bornean species that I have refrained from proposing a new genus for *T. cuneata.*

Genus PETALOCEPHALA.

Petalocephala, *Stål, Öfv. Vet.-Ak. Förh.* 1853, p. 266; *id. tom. cit.* 1854, p. 251; *id. Hem. Afr.* iv, p. 103 (1866); *Atkins. J. A. S. B.* liv, p. 106 (1885).

Ledropsis, *Melich.* (*nec White*) *Hom. Faun. Ceylon.* p. 141 (1903).

Type, *P. bohemani*, Stål, from Java.

Distribution. Ethiopian, Oriental, Malayan and Australasian Regions.

"Body very oblong or a little elongate, depressed; head clypeated, foliaceously produced anteriorly; vertex somewhat flattened; face beneath eyes strongly and abruptly, thence gradually, narrowed, margins very slightly defined; front small, narrow, flattish; eyes small; ocelli situate towards base of vertex, farther removed from the eyes than from each other; pronotum transversely sexangular, not or only slightly anteriorly narrowed,

the lateral margins acute, anterior lateral much longer than posterior lateral, anterior margin slightly rounded; scutellum triangular, subequilateral; tegmina subcoriaceous, pellucid, densely punctate, tectiform, anteriorly conjointly convex, clavus very broad before the middle, corium obliquely rounded at apex, veins somewhat irregularly anastomosed towards apex; legs somewhat short, anterior coxæ free, posterior tibiæ remotely dentate." (*Stål.*)

a. *Vertex of head longer than breadth between eyes.*

2361. **Petalocephala subaquila**, sp. n.

♀. Head, pronotum, scutellum, body beneath and legs ochraceous, tegmina umber-brown; vertex of head about as long as pronotum and scutellum united, much longer than breadth between eyes, moderately deflexed on each side, the apex subangulate and a little upturned, obscurely centrally longitudinally carinate, the surface obscurely punctate and sparingly finely granulose; pronotum punctate, a little transversely wrinkled, centrally longitudinally impressed, lateral margins almost obliquely straight; scutellum transversely wrinkled; tegmina densely and rather coarsely punctate; posterior tibiæ remotely but rather strongly finely spinose.

Length incl. tegm. ♀ 14 millim.

Hab. Burma; Ruby Mines (*Doherty*).

b. *Vertex of head about as long as breadth between eyes.*

2362. **Petalocephala hearsayi**, sp. n.

♀. Virescent; vertex as long as breadth between eyes, finely punctate, gradually narrowed to apex, which is rounded, strongly centrally longitudinally ridged; pronotum with the disk sparingly punctate, anteriorly and posteriorly coarsely and thickly punctate, the disk slightly centrally longitudinally furrowed; scutellum obscurely irregularly striate; tegmina thickly punctate, the claval area more coarsely punctate, apical margin almost obliquely truncate.

Length incl. tegm. $15\frac{1}{2}$ millim.

Hab. Sikhim (*Coll. Dist.*); Barrackpore (*Sir Jno. Hearsay, Brit. Mus.*).

This species is allied to *P. bohemani*, Stål, of which the British Museum apparently possesses an example collected by Dr. Horsfield in Java. From this it differs by the much less sinuate posterior margin of the pronotum and the less centrally furrowed disk of same, the much more strongly centrally ridged vertex, and the more obliquely truncated apices of the tegmina. The specimen from Barrackpore in the British Museum I have fixed as type.

2363. **Petalocephala cultellifera**, *Walk.* (Ledra) *J. Linn. Soc., Zool.* i, p. 98 (1856).

Ledra punctifera, *Walk. List Hom. Suppl.* p. 249 (1858); *Atkins. J. A. S. B.* liv, p. 95 (1885).

Virescent or ochraceous; vertex about as long as breadth between eyes, conically produced towards apex, thickly finely punctate,

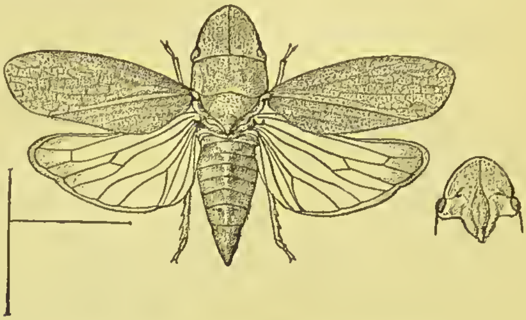

Fig. 109.—*Petalocephala cultellifera.*

centrally longitudinally carinate; pronotum finely punctate, posteriorly finely rugulose, centrally longitudinally linearly impressed; tegmina thickly punctate; posterior tibiæ inwardly strongly dentate.

Length excl. tegm. 15 to 17; exp. tegm. 28 to 32 millim.

Hab. Sikhim; Mungphu (*Atkinson Coll.*); Darjiling (*Brit. Mus.*).—Malay Peninsula; Perak (*Doherty*); Singapore (*Wallace, Brit. Mus.*).

2364. **Petalocephala conica**, *Walk.* (Ledra) *List Hom.* iii, p. 823 (1851); *Stål* (Petalocephala), *Öfv. Vet.-Ak. Förh.* 1862, p. 494; *Melich.* (Ledropsis) *Hom. Faun. Ceylon*, p. 145 (1903).

Ledropsis ståli, *Melich. Hom. Faun. Ceylon*, p. 143, t. iv, f. 16 (1903).

This species is closely allied to the preceding, *P. cultellifera*, and can only be separated from it by the more conical and apically more broadened vertex of head. It appears to be confined to Ceylon and from Melichar's description I cannot separate the species he describes as *Ledropsis ståli*.

Length ♀ 15 to 17 millim.

Hab. Ceylon; Kelani Valley (*Green*); Digitalawa (*C. H. Bingham, Coll. Dist.*); Gamaduwa, Mirigama, Uwa, Weligama, Pattipola, Puttalam (*fide Melichar*).

Capt. C. H. Bingham caught this species with the Hymenopteron *Gorytes greeni*, Bingh., which was carrying it.

2365. **Petalocephala confusa**, sp. n.

♀. Virescent or pale ochraceous; vertex of head as long as space between eyes, thickly finely punctate, with a fine central

longitudinal carination, lateral margins convexly narrowed to apex which is subangulate; pronotum a little more coarsely punctate than vertex and with a fine central longitudinal compressed line, the lateral margins nearly straight; scutellum finely punctate, with an angulated transverse line before apex, beyond this line the apical area is a little transversely wrinkled; face narrow, gradually broadening posteriorly from area of antennæ where it is centrally sulcate; tegmina thickly and coarsely punctate.

Length incl. tegm. ♀ 13 millim.

Hab. Ceylon; Kandy (*Green*).

This species is allied to *P. conica*, Walk., from which it differs in its much smaller size. I have seen four female specimens.

2366. **Petalocephala glauca**, *Melich.* (Ledropsis) *Hom. Faun. Ceylon*, p. 142, t. iv, f. 13 (1903).

"Green, upper surface thickly punctate; head distinctly longer than broad, keeled in middle, and like pronotum thickly punctate; scutellum with a fine angulated transverse line; tegmina punctate, green; tips of the spines to posterior tibiæ brown."

"♀. Last ventral segment as long as the one preceding it; 'Scheidenpolster' long, arched, very broad when examined from side, compressed on dorsal side; ovipositor not visible." (*Melichar.*)

"Length ♀ 11 millim."

Hab. Ceylon; Peradeniya, Puttalam (*fide Melichar*).

I do not know this species; by the figure given it should be identified by the long and apically broadly or transversely rounded vertex.

2367. **Petalocephala uniformis**, sp. n.

Uniformly pale ochraceous or virescent; vertex of head about as long as breadth between eyes, very thickly punctate, strongly centrally longitudinally carinate, lateral margins convexly narrowed to apex which is subangulate; pronotum punctate and transversely wrinkled, with a central longitudinal incision not reaching posterior margin, a foveate impression on each side of anterior disk; scutellum punctate; tegmina thickly punctate, less so on posterior costal area, claval area very coarsely and thickly punctate.

Length ♀ 12½ to 13 millim.

Hab. Bombay. Utakamand (*Brit. Mus.*).

2368. **Petalocephala umbrosa**, sp. n.

Very pale umber-brown, body beneath paler and more ochraceous; vertex of head as long as breadth between eyes, the lateral margins narrowly carmine-red, obliquely sloping downward on each side, finely punctate, centrally longitudinally carinate, the apex subangulate; pronotum about as long as vertex, somewhat coarsely punctate, foveately impressed on each side before middle, obscurely centrally longitudinally carinate posteriorly and im-

pressed anteriorly; tegmina thickly punctate, more coarsely so on claval area; posterior tibiæ remotely but coarsely dentate.

Length incl. tegm. ♀ 13 millim.

Hab. Nilgiri Hills (*Hampson*); Utakamand (*Brit. Mus.*); Bombay: Igatpuri (*Lefroy*); Assam; Margherita (*Doherty*).

2369. **Petalocephala chlorocephala**, *Walk.* (Ledra) *List Hom.* iii, p. 825 (1851); *Stål* (Petalocephala), *Öfv. Vet.-Ak. Förh.* 1862, p. 494; *Atkins. J. A. S. B.* liv, p. 107 (1885).

Ledropsis fuscipennis, *Melich. Hom. Faun. Ceylon*, p. 144, t. iv, f. 15 (1903).

Head, pronotum and scutellum ochraceous or virescent; tegmina ochraceous, the claval area sometimes more or less purplish, a small dark spot on disk which in some specimens is obsolete; vertex about as long as breadth between eyes, angularly rounded in front, the apical lateral margins a little reflexed, finely punctate, distinctly centrally longitudinally carinate; pronotum more coarsely punctate, obscurely centrally linearly furrowed, with two distinct foveations on anterior area; scutellum punctate, apically obscurely transversely striate; face very strongly centrally longitudinally furrowed.

Length incl. tegm. 11 to 12 millim.

Hab. "North India" (*Brit. Mus.*). Ceylon; Pundaluoya (*Green, Brit. Mus.*).

2370. **Petalocephala latifrons**, *Walk.* (Ledra) *List Hom.* iii, p. 824 (1851); *Stål* (Petalocephala), *Öfv. Vet.-Ak. Förh.* 1862, p. 494.

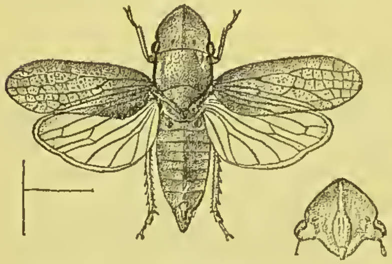

Fig. 110.—*Petalocephala latifrons.*

Closely allied to *P. chlorocephala*, Walk., from which, however, it may be easily separated by the following characters:—the lateral margins of the vertex are not evenly continued to apex, but are almost straight for a short distance before the eyes and then somewhat obliquely continued to apex; lateral margins of the pronotum black; face obscurely, not prominently, longitudinally sulcate; tegmina usually shining rusty-brown, sometimes dull ochraceous, with the clavus more or less purplish-brown.

Length incl. tegm. 13 millim.

Hab. Sikhim; Mungphu (*Atkinson*). Bombay: Igatpuri (*Lefroy*). Assam (*Badgley, Brit. Mus.*). Sylhet (*Brit. Mus.*).

2371. **Petalocephala hornei**, sp. n.

Head, pronotum, scutellum, body beneath and legs ochraceous lateral margins of vertex and central carination to same narrow,

anterior and broader posterior suffusions to pronotum, an elongate spot near each basal angle of scutellum and apical area to same, anterior area of head beneath extending as far as eyes and the tibiæ and tarsi, more or less pale castaneous-brown; tegmina dark castaneous-brown, a little paler at basal costal area; vertex of head about as long as breadth between eyes, finely and obscurely punctate, the lateral margins reflexed and strongly centrally longitudinally carinate; pronotum more coarsely punctate, especially so on anterior and posterior areas, two prominent foveations on anterior disk; scutellum finely granulose at base, transversely striate on apical area; tegmina thickly punctate, very coarsely so on claval area; posterior tibiæ with six short spines.

Length incl. tegm. ♀ 13 millim.

Hab. "North-West India" (*C. Horne*, *Brit. Mus.*).

Allied to *P. latifrons*, Walk., but differs in the more conically rounded vertex, lateral margins of the pronotum concolorous, not black, the spotted scutellum, &c.

2372. **Petalocephala bicolor**, sp. n.

Head, pronotum, scutellum, body beneath and legs ochraceous; broad lateral margins to vertex of head and pronotum and the whole of the tegmina umber-brown or very pale castaneous; apical margins of tegmina narrowly piceous; vertex about as long as space between eyes, narrowed to apex which is obtusely angulate, no perceptible central carination, very obsoletely punctate, the margins wrinkled, lateral areas deflexed, apex slightly upturned; pronotum obsoletely punctate, with an obscure central line on disk; scutellum obsoletely punctate; tegmina thickly finely punctate, inner margin of clavus a little darker; head beneath very prominently foveate on each side at inner margins of eyes.

Length incl. tegm. 12 millim.

Hab. Ceylon; Kandy (*Green*).

Mr. Green sent me a single specimen of this species, which in addition to its peculiar markings, may be recognized by the obsolete puncturation to the vertex and pronotum.

2373. **Petalocephala insignis**, sp. n.

♀. Head, pronotum, scutellum, body beneath and legs ochraceous; vertex with the sublateral margins for about half their length from eyes, and the apical area of the central carination, black; sublateral margins to the pronotum black; anterior prolongation of face and basal sublateral margins in front of eyes black; abdomen above testaceous; tegmina greyish-ochraceous, costal area for half its length stramineous, beneath which the tegmen is broadly suffused with piceous from base and apically transversely deflexed to disk; tegmina hyaline with the veins brownish; vertex about as long as breadth between eyes; the lateral margins ridged, centrally strongly longitudinally carinate,

subrugulose; pronotum punctate, finely transversely wrinkled, with a rather faint central longitudinal carination; scutellum with the disk punctate, the apical area transversely striate, the

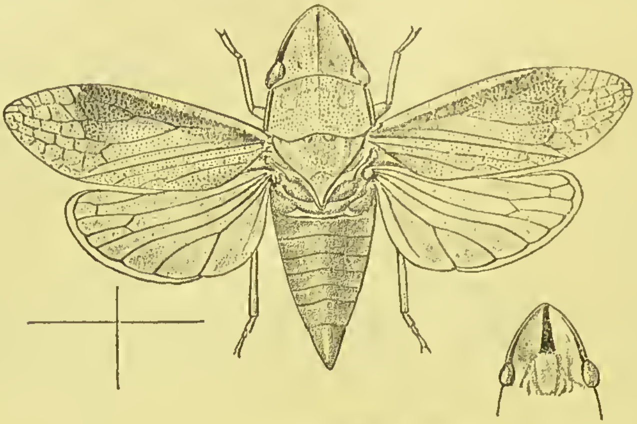

Fig. 111.—*Petalocephala insignis.*

basal angular area impunctate; tegmina punctate, more coarsely so on the claval and costal areas.

Length excl. tegm. ♀ 11 millim.; exp. tegm. 20 millim.

Hab. Sikhim (*Atkinson Coll.*, *Brit. Mus.*).

2374. **Petalocephala perductalis**, *Kirby* (Clovia), *J. Linn. Soc., Zool.* xxiv, p. 161, t. v, f. 2 (1891); *Melich.* (Ledropsis) *Hom. Faun. Ceylon*, p. 145 (1903).

Head, pronotum, scutellum and tegmina pale chocolate-brown; a central broad longitudinal fascia traverses the vertex, pronotum and scutellum, narrowing on vertex, ochraceous; body beneath and legs dull ochraceous; vertex of head about as long as space between eyes, finely punctate, narrowing to apex which is obtusely angulate; pronotum finely transversely wrinkled, the lateral margins obliquely straight; scutellum finely transversely wrinkled; face with a foveate impression on each side in a line with the antennæ; tegmina thickly, somewhat coarsely punctate.

Length incl. tegm. ♀ 12 millim.

Hab. Ceylon; Pundaluoya, Kandy, Maskeliya (*Green*); Badda-Eliya, Ambepusse (*fide Melichar*).

The brilliant and unique coloration of this species renders its recognition a matter of no difficulty.

c. *Vertex of head considerably shorter than breadth between eyes.*

2375. **Petalocephala nigrilinea**, *Walk.* (Ledra) *J. Linn. Soc., Zool.* i, p. 98 (1856).

Ledropsis dimidiata, *Stål, Öfv. Vet.-Ak. Förh.* 1858, p. 452.

Ledropsis kirbyi, *Melich. Hom. Faun. Ceylon*, p. 143, t. iv, f. 14 (1903).
Eogypona kirbyi, *Kirk. in litt.*

Virescent or ochraceous; anterior margin of vertex narrowly testaceous; lateral margins of pronotum very narrowly and finely or more broadly black; in some specimens the clavus, excluding its inner margin, is more or less fuscous-brown; vertex of head considerably shorter than width between eyes, almost obliquely straight for a short distance in front of eyes and thence convexly narrowed to apex, which is subangulate, centrally finely longitudinally carinate; pronotum obscurely transversely rugulose, its lateral margins straight; tegmina thickly punctate, more coarsely so on claval area.

Length incl. tegm. 10 to 12 millim.

Hab. Nilgiri Hills (*Hampson*). Ceylon; Kandy (*Green*), Punduluoya, Patipolla, Neeldandahecna, Weligama (*fide Melichar*).—Singapore (*Wallace, Brit. Mus.*).

Although Melichar does not mention the narrow dark margins to the vertex and pronotum he figures the vertex of his species, the peculiar structure of which leaves little doubt as to its identity with Walker's *P. nigrilinea*. From Stål's description his *dimidiata* also appears to be a synonym.

2376. **Petalocephala tabulata**, sp. n.

♀. Vertex greyish, minutely spotted with sanguineous, the basal margin and sometimes a central line also of that colour; ocelli piceous; pronotum olivaceous-brown, the anterior and lateral areas greyish, minutely spotted with sanguineous, a transverse series of small grey spots at basal margin; scutellum pale castaneous; body beneath ochraceous, the head, lateral margin of prosternum and lateral margins of abdomen sanguineous; tegmina piceous-brown, the posterior costal area greyish, a few small greyish spots on margins of claval area; vertex broad, shorter than space between eyes, sparingly punctate, lateral margins slightly angulated in front of eyes; pronotum with the discal area finely wrinkled, the anterior and lateral areas punctate; scutellum punctate, the apex lævigate; tegmina punctate, the claval area very coarsely punctate.

Fig. 112.
Petalocephala tabulata.

Length incl. tegm. ♀ 7½ millim.

Hab. Ceylon; Pundaluoya (*Green, Brit. Mus.*).

A small and very distinctly marked species.

2377. **Petalocephala brachycephala**, sp. n.

Virescent or greenish-ochraceous; ocelli red; eyes black; vertex of head little more than half as long as breadth between eyes, flattened in each lateral area, finely punctate, centrally longitudinally ridged, lateral margins convexly narrowed to apex, which is subangulate; pronotum with a distinct central longitudinal incision, punctate and obscurely transversely wrinkled; scutellum somewhat coarsely punctate; tegmina thickly punctate, except on posterior costal area, claval area very thickly and coarsely punctate.

Length ♀ 15 millim.

Hab. Trivandrum (*Coll. Dist.*). Ceylon (*Green, Brit. Mus.*); Kandy (*Coll. Dist.*).

2378. **Petalocephela remota**, *Melich.* (Ledropsis) *Hom. Faun. Ceylon* p. 144, t. iv, f. 17 (1903).

"Greenish-yellow; head as long as broad* and as long as pronotum, in front 'parabolisch' rounded, centrally extremely finely keeled, on whole surface wrinkled and punctate; ocelli very small, difficult to perceive, placed before middle and near each other, whereby the species differs from all the other allied ones in which the ocelli are generally very large and distinct and situate in the middle or nearer the posterior margin; face pale greenish-yellow, the narrow front in middle distinctly furrowed; pronotum smooth, wrinkled and punctate, with two shallow impressions in front; scutellum with a fine angulate transverse line before apex; tegmina thickly and regularly punctate, hyaline, extending to the apex of abdomen, with delicate indistinct veins; legs as in the other species." (*Melichar.*)

"Length ♀ 10 millim."

Hab. Ceylon; Heneratgoda (*fide Melichar*).

2379. **Petalocephala walkeri**, *Melich.* (Ledropsis) *Hom. Faun. Ceylon*, p. 144, t. iv, f. 10 *a, b* (1903).
Eogypona walkeri, *Kirk. MS.*

"Green or yellowish-green, sometimes pale brownish-yellow; vertex broader than long, flattened, in middle distinctly keeled, anterior border angulated, sides convex, forming no angle before the eyes, the upper surface thickly punctured; pronotum on the whole surface moderately thickly punctate, not wrinkled, with a few shallow impressions; scutellum with an angulated transverse line; tegmina on whole surface regularly punctate; wings hyaline; underside and legs greenish-yellow; tips of spines to posterior tibiæ brown." (*Melichar.*)

Length ♀ 14 to 15 millim.

Hab. Ceylon; Pattipola (*fide Melichar*).

I have not seen this species.

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* This appears to be an error, for in Melichar's figure the vertex is only about half as long as the breadth between eyes.

Genus LEDRA.

Ledra, *Fabr. Syst. Rhyng.* p. 24 (1803); *Fieb. Rev. Mag. Zool.* (3), xxvi, p. 386 (1875); *Melich. Cic. Mitt. Europ.* p. 126 (1896).
Ledromorpha, *Melich.* (part.) *nec Stål, Hom. Faun. Ceylon*, p. 140 (1903).

Type, *L. aurita*, Linn., a Palæarctic species.

Distribution. Palæarctic, Oriental and Malayan Regions.

Head with the vertex laminate, transverse, obtusely angulate anteriorly and obliquely angulate in front of eyes; pronotum hexagonal, more or less longitudinally ridged, sometimes with laminate processes, anterior margin nearly straight, wider than the posterior margin which is deeply sinuate; scutellum somewhat small; tegmina coriaceous or semicoriaceous, the veins prominent; head beneath foliaceous before the face; posterior tibiæ laminately widened, outwardly remotely dentate and ciliate.

The foliaceously or laminately widened posterior tibiæ and the laterally angulated vertex in front of eyes are distinctive characters of this genus.

A. *Pronotum longitudinally ridged, or carinate with elevated laminate processes.*

2380. **Ledra serrulata**, *Fabr. Syst. Rhyng.* p. 24 (1803); *Stål, Hem. Fabr.* ii, p. 58 (1869); *Atkins. J. A. S. B.* liv, p. 92 (1885).

"Greyish or flavescent-greyish; body beneath and legs pale testaceously-flavescent or testaceously white; tegmina greyish, pellucid behind middle, a broad pallescent, obsolete fascia near base; wings sordidly hyaline; abdomen above flavescent sanguineous; pronotum elevated posteriorly, furnished on each side with an erect process produced forward and posteriorly marginally crenulate; sometimes with two interrupted fasciæ on the head beneath and some median markings on the pronotum, black. Structure of *L. aurita*, Linn. but head more roundly produced, pronotal processes longer; head somewhat shorter than pronotum, gradually distinctly amplified for a short distance before the eyes, thence abruptly angulated and anteriorly much rounded, the area of the ocelli impressed, the impressed portion forwardly amplified and gradually merged in the anterior disk, anteocular area remotely sprinkled with distinct granules; lateral margins of pronotum parallel at apex, thence somewhat backwardly divergent, two parallel ridges behind the middle which are anteriorly slightly divergent, obtuse, minutely tuberculate and towards the sides a lobiform crest, very high, slightly bending forward, remotely granulate, posteriorly crenulate; scutellum gradually transversely depressed towards the middle, before middle laterally sprinkled with granules, posteriorly much elevated, the elevated area posteriorly black and granulate; tegmina gradually slightly amplified beyond the middle, thence outwardly rounded, nearly the whole of clavus and corium towards base punctured and sprinkled with granules at intervals, veins here and there infuscate; tibiæ above sparingly granulate." (*Stål.*)

"Length ♀ 18, breadth 5 millim."

Hab. "Tranquebar."—Malacca.

I have been unable to identify with certainty this species with any of the specimens that have passed through my hands.

2381. **Ledra intermedia,** sp. n.

♀. Somewhat pale ferruginous-brown; vertex considerably shorter than breadth between eyes, the anterior area of vertex strongly granulate, lateral margins in front of eyes for a short distance obliquely straight and then narrowed to apex which is subconically rounded; pronotum with two central discal longitudinal carinations, on each side of which is a strongly raised laminate process; scutellum chocolate-brown, with two short prominent longitudinal ridges at apex; tegmina with the venation more or less reddish, with a few very small granules on basal half and with scattered black speckles on posterior half; head beneath with a central fascia in front of eyes, a large spot between face and eyes and the clypeus carmine-red, on the anterior fascia are four large black spots, two on each side of face; anterior and intermediate femora broad and foveate.

Length ♀ 21 millim.

Hab. Southern India; Travancore (*Brit. Mus.*).

This species is intermediate between the Malayan *L. tuberculifrons*, Walk., and *L. mutica*, Fabr. It is allied to the first by the granulate anterior area of the vertex and resembles both in its elongate form, but differs by the prominently raised laminate processes to the pronotum.

2382. **Ledra dorsalis,** *Walk. List Hom.* iii, p. 810 (1851); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 495; *Atkins. J. A. S. B.* liv, p. 94 (1885).

Head and pronotum ochraceous or greyish-ochraceous, posterior area of pronotum, scutellum and tegmina darker in hue, an oblique basal patch to tegmina testaceous; body beneath and legs ochraceous, head beneath on basal half with a central and two oblique black fasciæ; vertex of head about half as long as breadth between eyes, with a strong central and two short oblique ridges, rugosely granulate, lateral margins obliquely straight for a short distance in front of eyes and thence transversely oblique to apex; pronotum with two central ridges, on each side of which is an upwardly raised laminate process, the whole surface, but particulary the raised disk, coarsely granulate; tegmina with scattered small tubercles.

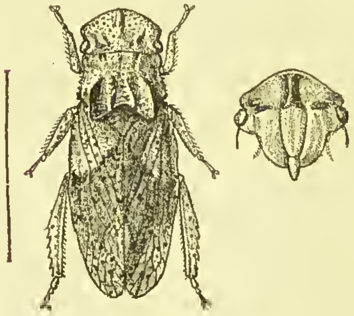

Fig. 113.—*Ledra dorsalis*, ♀.

Length incl. tegm. ♂ 16, ♀ 21 millim.

Hab. Sikhim; Mungphu (*Atkinson Coll.*). Assam (*Badgley, Brit. Mus.*); Sylhet (*Brit. Mus.*).

2383. **Ledra sublata**, sp. n.

Greyish with a virescent tint, more or less suffused with piceous; vertex of head distinctly shorter than breadth between eyes, coarsely granulate, very finely centrally longitudinally carinate, lateral margins angulate in front of eyes and then somewhat transversely rounded to apex which is subangulate; pronotum coarsely granulate, more particularly so on anterior margin and posterior disk, the latter elevated with three longitudinal granulate ridges, the central ridge shortest, on each side of these a raised laminate process, the margins of which are rounded and a little directed backward, the posterior angles somewhat subacutely prominent; scutellum piceous with the apex pale and raised where there are two longitudinal ridges of black granules; tegmina greyish, the veins mostly brownish, the base and a broad ill-defined oblique fascia near middle piceous; body beneath and legs greyish with a virescent tint; head beneath in front of eyes with darker speckles, this space posteriorly bounded with a broken black transverse narrow fascia, behind which the face is longitudinally sulcate; tibiæ more or less spotted with piceous.

Length incl. tegm. ♂ 16 millim.

Hab. Ceylon; Eppawela (*Green*).

This species has a strong superficial resemblance to *L. cingalensis*, Dist. (p. 175), but differs by the elevated pronotal processes.

B. *Pronotum longitudinally ridged or carinate, without elevated laminate processes.*

2384. **Ledra mutica**, *Fabr. Syst. Rhyng.* p. 25 (1803); *Stål, Hem. Fabr.* ii, p. 59 (1869); *Atkins. J. A. S. B.* liv, p. 92 (1885).
Ledra fornicata, *Walk. List Hom.* iii, p. 815 (1851).
Ledra carinata, *Walk. tom. cit.*

♀. Head, pronotum, scutellum, tegmina, body beneath and legs ochraceous, above with darker spots and granules; abdomen above testaceous; vertex of head as long as space between eyes, rather thickly granulate, with a very fine central longitudinal carination, the lateral margins obliquely angulate in front of eyes, thence narrowed to apex which is subangulate; pronotum granulate, transversely impressed on disk behind anterior margin, moderately gibbous posteriorly where there are four fine discal longitudinal ridges, in front of the transverse impression the granules are a little larger and more prominent; face widened at the area of the antennæ, thence only slightly narrowed posteriorly; scutellum with a longitudinal series

of about three granules at each basal area and a double longitudinal series of granules on apical area; tegmina with a number of scattered granules on basal half, veins sometimes testaceous.

Length excl. tegm. ♀ 16; exp. tegm. 30 millim.

Hab. Bombay (*Dixon*). Kangra Valley (*Dudgeon*). Mussoorie, Pusa (*Lefroy*). Calcutta. Burma; Pegu (*Coll. Dist.*).

To be separated from the following species, *L. dilatata*, Walk. by the narrower and longer vertex of head. I have not seen a male example.

2385. **Ledra dilatata,** *Walk. List Hom.* iii, p. 811 (1851); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 495; *id. Hem. Fabr.* ii, p. 59 (1869); *Atkins. J. A. S. B.* liv, p. 93 (1885).
Ledra scutellata, *Walk. List Hom.* iii, p. 812 (1851).
Ledra plana, *Walk. tom. cit.*

Tawny-brown, with scattered darker granules; body beneath and legs much paler; head beneath in front of eyes greyish-brown, between eyes a piceous fascia much more distinct in ♀ than in ♂; vertex in both sexes as long as breadth between eyes, moderately thickly granulate, the lateral margins obliquely straight for a little in front of eyes and then convexly subangularly rounded to apex, strongly centrally longitudinally ridged, with a more

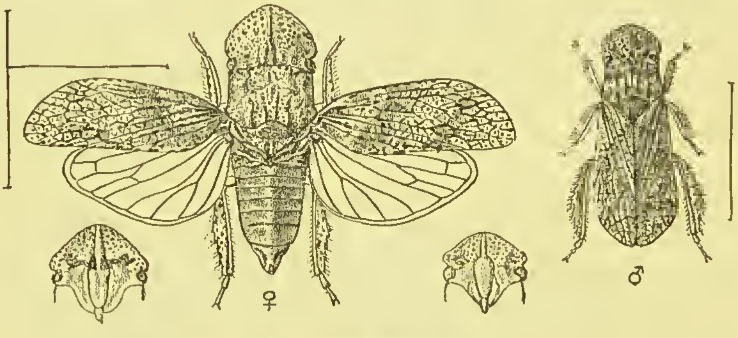

Fig. 114.—*Ledra dilatata*, ♂ & ♀.

obscure short oblique ridge on each side; pronotum granulate, with five longitudinal ridges on posterior disk, the central ridge very short; scutellum with two apical black ridges; abdomen above testaceous-red, the anal segment ochraceous; tegmina pale brownish-ochraceous, the veins darker, a few small scattered granules on basal half; wings hyaline, the veins darker and sanguineous at base.

Var. Tegmina (excluding costal apical area) fuscous brown.

Length incl. tegm. ♂ 16, ♀ 23; exp. tegm. ♀ 36 to 38 millim.

Hab. Nilgiri Hills (*Hampson*). Burma; Ruby Mines (*Doherty*); Thayetmyo (*Watson*). Tenasserim (*Brit. Mus.*).

The smaller specimen figured is the ♂ type *L. dilatata*, Walk., the larger figure is the ♀ type *L. scutellata*, Walk.

2386. **Ledra cingalensis**, sp. n.
Ledra dilatata, *Melich.* (*nec Walk.*) *Hom. Faun. Ceylon*, p. 139 (1903).

Allied to the preceding species, *L. dilatata*, Walk., but differs in the shorter vertex which is distinctly shorter in length than the breadth between the eyes; in the ♂ the vertex is much more transverse and less anteriorly angulate, in the ♀ the vertex is also proportionally shorter and less narrowed anteriorly.

Length incl. tegm. ♂ 15, ♀ 20 to 21 millim.

Hab. Ceylon (*Green, Brit. Mus.*).

2387. **Ledra rugosa**, *Walk. List Hom.* iii, p. 816 (1851); *Melich.* (Ledromorpha) *Hom. Faun. Ceylon*, p. 140 (1903).

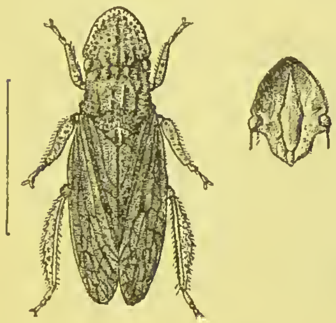

Fig. 115.—*Ledra rugosa.*

Dark ferruginous-brown, sparingly finely granulate; head beneath, sternum and legs brownish-ochraceous, tibiæ and tarsi ferruginous; head with the vertex as long as breadth between the outer margin of eyes, its lateral margins a little paler, centrally finely longitudinally carinate, the whole surface more or less granulate, laterally depressed on each side; pronotum finely granulate, the posterior disk with four longitudinal ridges; scutellum with two apical ridges; tegmina with scattered small granules, the apical half between the veins paler in hue; wings subhyaline, the veins fuscous; abdomen mutilated in the unique typical specimen, which apparently belongs to the female sex.

Length incl. tegm. 18 millim.

Hab. Ceylon (*Brit. Mus.*).

I only know this species by the unique type in the British Museum, which is here figured.

2388. **Ledra? punctulata**, *Melich.* (Ledromorpha) *Hom. Faun. Ceylon*, p. 141 (1903).

"A small, narrow, rather long species, of a dirty grey-greenish colour, with black shining granules on the whole upper surface; vertex as long as pronotum, anteriorly leaf-like, sharpened, rounded, in the middle keeled, the sides flattened off downward; face dirty green, front narrow, keel-like lengthened above; eyes black; pronotum distinctly bulging, raised at hind margin, the black granules forming there a more or less regular transverse series; scutellum small, with two longitudinal furrows at base which merge into a recumbent transverse furrow lying before the

tip, so that at the base three slightly arched humps are formed; tegmina with a blackish-brown transverse fascia which is directed from the middle of costal margin obliquely forward and runs inward to tip of scutellum, numerous scattered black granules which form a longitudinal series on costal margin and are specially distinct in the paler apical part; pectus, abdomen and legs dirty green, the tibiæ with rather large black spots at the angles, on surface very finely punctate, tarsi dirty green." (*Melichar.*)

Length ♂ 9 millim.

Hab. Ceylon; Peradeniya (*fide Melichar*).

I have not seen this species.

The two following species have been described by Walker in the genus *Ledra*, but the unique types are both mutilated and their generic position indeterminable.

Gen.? **punctata**, *Walk.* (Ledra) *List Hom.* iii, p. 824 (1851); *Atkins. J. A. S. B.* liv, p. 94 (1885).

Hab. Malabar (*Brit. Mus.*).

Gen.? **lineata**, *Walk.* (Ledra) *List Hom.* iii, p. 830 (1851); *Atkins. J. A. S. B.* liv, p. 94 (1885).

Hab. "North India" (*Brit. Mus.*).

Genus **CHATURA**, nov.

Type, *C. nigella*, Dist.

Distribution. Ceylon.

Vertex about as long as breadth between eyes and almost as long as pronotum and scutellum united, not angulated in front of eyes, the lateral margins continuous from eyes to apex; face broad between the eyes, angularly narrowed anteriorly; pronotum short, considerably shorter than vertex, with four central ridges, the lateral margins sinuate, anterior and posterior margins nearly straight, the latter only slightly concavely sinuate; scutellum discally foveate; legs moderately short, posterior tibiæ not foliaceously dilated, outwardly somewhat strongly spinose; tegmina short, more or less granulose, apices broadly rounded.

Differs from *Ledra* by the non-dilated posterior tibiæ, the non-angulated vertex in front of eyes, the short pronotum, &c.

2389. **Chatura nigella**, sp. n.

Head, pronotum and scutellum ochraceous; head sparingly testaceously granulate, with a central longitudinal dark testaceous fascia; pronotum with the disk piceous; abdomen above brownish-testaceous; head beneath anteriorly ochraceous, the face and an anterior central fascia piceous; sternum and legs ochraceous, the former more or less suffused with piceous; abdomen beneath

greyish-brown; tegmina ochraceous with scattered black granules and two obscure oblique fuscous fasciæ, one near middle, the other subapical; wings very pale fuliginous, subhyaline; vertex of head about as long as breadth between eyes, lateral margins not

Fig. 116.—*Chatura nigella.*

angulated in front of eyes but gradually roundly narrowed to apex, which is a little subangulate; pronotum with four central ridges, the outermost longest and much angulated, between them a series of granules at anterior margin, lateral margins sinuate; scutellum discally foveate with a central carination; face very broad, angulated anteriorly and posteriorly; posterior tibiæ remotely and rather longly spinous on inner margin.

Length excl. tegm. ♀ 11; exp. tegm. 16 millim.

Hab. Ceylon; Maskeliya (*Green*).

Genus **EZRANA**, nov.

Type, *E. pygmæa*, Dist.

Distribution. British India.

♂. Head shorter than breadth between eyes; ocelli very prominent, placed on disk behind middle and slightly nearer to each other than to eyes, lateral margins straight for a short distance in front of eyes then narrowed to apex, which is obtusely acute; pronotum non-carinate, but centrally longitudinally sulcate, lateral margins a little concavely sinuate, posterior angles subprominent, posterior margin sinuate; other characters generally as in *Ledra*; legs imperfectly seen, owing to corrosion, in typical specimen, but the posterior tibiæ not foliaceously dilated.

2390. **Ezrana pygmæa**, sp. n.

Body above pale ochraceous; eyes piceous; margins of ocelli, a large irregular discal spot on each side of pronotum, a basal marginal fascia to pronotum and two oblique spots to mesonotum, castaneous; body beneath a little paler; head beneath pale yellowish-white, its anterior area pale virescent; tegmina pale greyish-ochraceous, basal half opaque, remaining area talc-like,

with the reticulate venation pale greyish-ochraceous; vertex of head minutely tuberculate on its anterior area; pronotum

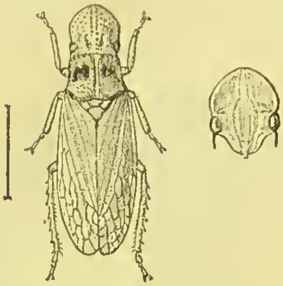

Fig. 117.—*Ezrana pygmæa.*

sparingly finely tuberculous, centrally sulcate, its anterior margin with minute piceous spots.

Length $10\frac{1}{2}$ millim.

Hab. Bombay (*Brit. Mus.*).

Genus CONFUCIUS.

Confucius, *Dist. Ann. Soc. Ent. Belg.* li, p. 191 (1907).

Type, *C. granulatus*, Dist., from China.

Distribution. Oriental and Eastern Palæarctic Regions.

Vertex of head about as long as breadth between eyes, strongly deflected on each side, the apex subangulate; head beneath foliaceous, the face long, strongly narrowed anteriorly, less so posteriorly, finely centrally furrowed from the region of the antennæ to clypeus; pronotum about as long as broad, non-carinate, the lateral margins concavely sinuate, the posterior angles a little prominent, strongly foveate on each side behind anterior margin, thence somewhat convexly ascendant to posterior margin, which is concavely sinuate; legs moderate, all the tibiæ strongly sulcate, posterior tibiæ not foliaceously dilated; tegmina subcoriaceous, thickly punctate.

Allied to *Ledropsis,* from which it principally differs by the vertex not longer than breadth between eyes, the sinuate lateral margins and the anterior foveations to the pronotum, &c.

2391. **Confucius ocellatus**, sp. n.

♀. Pale umber-brown, body beneath and legs much paler; vertex of head about as long as breadth between eyes, finely granulate on apical area, the ocelli very prominent and appearing as two large black granules, the lateral margins a little angulate in front of eyes, thence gradually narrowing to apex, which is subangulate, the lateral areas downwardly reflexed on each side; pronotum thickly finely granulate, the posterior angles a little subacutely prominent, the lateral margins strongly sinuate, a large and deep foveation on each side near anterior margin; scutellum

finely transversely wrinkled, the apex globosely incrassate, from each side of the anterior margin is a similar short oblique globose ridge not extending beyond the middle of scutellum;

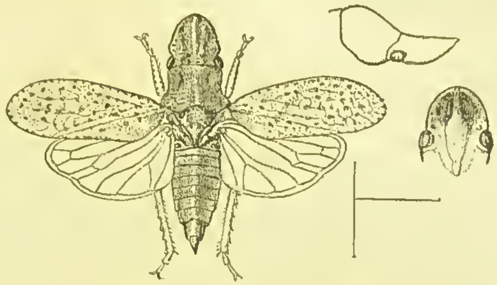

Fig. 118.—*Confucius ocellatus.*

tegmina coriaceous, greyish, the veins brownish; wings greyish, semi-opaque.

Var. Tegmina speckled with brownish.

Length incl. tegm. ♀ 9 millim.

Hab. Bengal; Ranchi (*Lefroy*). Ceylon; Kalutara (*Green*).

A single ♀ specimen of this small and distinct species was sent to me by Mr. Green, and another specimen of the same sex was forwarded for identification by Mr. Lefroy; the latter is here figured and represents the *var.* in which the tegmina are speckled with brownish.

2392. **Confucius bituberculatus**, sp. n.

♀. Dark brownish-ochraceous; body beneath and legs paler; tegmina dull dark subviresceut, with a prominent black tuberculous granule a little beyond middle of each claval area; vertex of head about as long as breadth between outer margins of eyes, the lateral and apical margins ochraceous and marked with some brownish dots, the remaining surface somewhat granulate excepting the area between ocelli, the lateral margins somewhat obliquely straight for a short distance in front of eyes and then gradually narrowed to apex, which is subangulate; pronotum granulate, more especially on posterior area, on posterior margin a series of larger grauules, on middle of anterior margin four small granules, lateral margins a little sinuate; scutellum a little piceous at base, with a raised umber-brown spot at each basal angle; tegmina dull subvirescent, the apical area obliquely subhyaline with the veius darker; scattered over the surface are a few minute granules in addition to the prominent tuberculous granule in each clavus as already described; both costal and inner margins with a series of minute brown granulate spots; face anteriorly much aud elongately narrowed, a very strong foveation on each side in frout of eyes.

Length incl. tegm. ♀ 11 millim.

Hab. Ceylon; Peradeniya (*Green*).

Genus LEDROPSIS.

Ledropsis, *White, A. M. N. H.* (1) xiv, p. 425 (1844); *Atkins. J. A. S. B.* liv, p. 95 (1885).

Type, *L. cancroma*, White, from China.

Distribution. Eastern Palæarctic, Oriental, Malayan and Australasian Regions.

"Head with its prolongation longer than wide, parallel in front of the eyes, as wide as the thorax, then gradually curved to the tip, which is somewhat obtuse; ocelli on the same line with the front of the eyes and rather more distant from each other than from the eyes; eyes large but not very prominent; prolongation hollowed out beneath, with a spear-shaped elevated ridge running down the middle, the base of which, on the face between the eyes, is hollowed out; antennæ spring from a depression in front of the eyes beneath, 3-jointed, the terminal joint ending in a longish bristle; thorax rounded in front, very deeply notched behind, the posterior angles truncately rounded; tegmina with many inclosed cells at the end, the veins robust; body elongate, margined beneath; tibiæ of posterior legs not dilated, serrated behind." (*White.*)

The length of the head, always considerably longer than the width at eyes, is a distinguishing character for this genus.

2393. **Ledropsis obligens**, *Walk.* (Ledra) *List Hom., Suppl.* p. 251 (1858); *Stål* (Ledropsis), *Öfv. Vet.-Ak. Förh.* 1862, p. 495; *Atkins. J. A. S. B.* liv, p. 95 (1885).

Testaceous or brownish-ochraceous; head considerably longer than width between outer margins of eyes, deflected on each side with a linear central longitudinal incision, the apex subangulate;

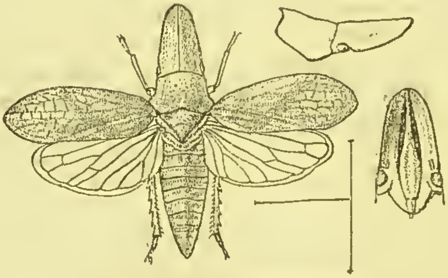

Fig. 119.—*Ledropsis obligens.*

face pale ochraceous, elongately triangular, the margins of its upper area piceous; pronotum shorter than vertex, finely transversely rugose; body beneath and legs pale ochraceous, the tibiæ outwardly testaceous or brownish-ochraceous; tegmina testaceous-

brown or brownish-ochraceous; wings hyaline with the venation darker; abdomen above testaceous or brownish-ochraceous.

Length excl. tegm. 14; exp. tegm. 20 millim.

Hab. Sikhim; Mungphu (*Atkinson Coll.*, *Brit. Mus.*). Nilgiris; Utakamand (*Brit. Mus.*).

2394. **Ledropsis maculata**, sp. n.

Head, pronotum and scutellum ochraceous; lateral margins and apex of vertex and anterior and posterior margins of pronotum more or less olivaceous; body beneath and legs pale ochraceous; lateral margins of face and legs virescent, tarsi olivaceous; tegmina greenish-ochraceous, tinted with pale olivaceous on basal half, the whole surface more or less sprinkled with small testaceous spots; vertex of head as long as pronotum and scutellum together, strongly deflected on each side, narrowed to apex, which is obtusely angulate and a little upturned, thickly punctate, with an obscure central longitudinal carination; pronotum coarsely punctate, with an obscure central linear impression, posterior margin strongly angularly sinuate, lateral margins concavely sinuate; scutellum coarsely punctate with a transverse impression before apex; tegmina thickly punctate, rather more coarsely punctate on basal and claval areas; head beneath transversely furrowed in front of eyes, face with a distinct central longitudinal carination.

Length incl. tegm. ♀ 16 millim.

Hab. Ceylon; Kandy (*Green*).

2395. **Ledropsis? producta**, *Melich.* (Ledromorpha) *Hom. Faun. Ceylon*, p. 140 (1903).

"Above rusty-brown, thickly and finely punctured and finely granulate, beneath pale brownish-yellow; vertex of head half longer than pronotum, towards front conically produced, transversely arched, finely and thickly granulate, without wrinkles; front narrow, gradually narrowed to tip of face, in middle a shortened longitudinal furrow with some transverse dashes on both sides; eyes not prominent; pronotum longer than broad; a little narrowed in front, transversely arched, gradually rising from anterior to hind margins, thickly and finely granulate; scutellum large, triangular, in basal angles on each side a rusty-brown spot, between these several indistinct spots and a curved transverse line before tip; tegmina longish, narrow, not widened outward, but narrow and rounded to the tip, the upper surface with finely punctured branching veins; wings hyaline; underside pale yellow; legs pale or dirty yellow, tibiæ and tarsi rusty-brown; femora not widened, with grey hair; specially recognizable by conical form of head and long narrow form of body." (*Melichar.*)

"Length ♀ 16 millim."

Hab. Ceylon; Moruwale (*fide Melichar*).

I have not seen this species.

Genus ELEAZARA, nov.

Type, *E. ædificatura*, Dist.

Distribution. British India.

Head broad, short, angulate, straight in front of eyes and then oblique to apex, which is angulate; ocelli on posterior vertical area; head beneath foliaceous, recurved anteriorly, face elongate, broadest between eyes, much narrowed anteriorly, less so posteriorly; pronotum longer than vertex, the lateral areas laminately subangularly dilated, anterior margin nearly straight, posterior margin concavely sinuate; scutellum with a central elevated crest-like process; legs of moderate length, posterior tibiæ slightly dilated, outwardly spinose; tegmina rugose and granulose, the veins, especially on apical area, elevated and prominent.

2396. **Eleazara ædificatura**, sp. n.

Ferruginous-brown; vertex of head shorter than breadth between eyes, its anterior area strongly granulose; pronotum strongly granulose on posterior area, more finely so on lateral areas, which are foveately depressed; a faint central longitudinal carination on disk, a short oblique ridge between eyes and two widely separated somewhat large discal flattened tubercles; scutellum elevated in a laminate recurved process; tegmina with rather more than basal half granulose and rugose, a somewhat prominent tubercle on clavus, apical area smooth with the veins elevated and prominent; tip of face at anterior margin of head black; anterior legs strongly granulose, intermediate and posterior tibiæ strongly grooved.

Fig. 120.—*Eleazara ædificatura.*

Length incl. tegm. ♀ 15 millim.

Hab. Assam; Dikrang Valley (*Coll. Dist.*).

Subfam. II. BYTHOSCOPINÆ.

Bythoscopidæ, *Dohrn, Catal. Hem.* p. 84 (1859); *Van Duzee, Ent. Amer.* v, p. 165 (1889); *id. Trans. Am. Ent. Soc.* xix, p. 296 (1892).
Bythoscopides, *Sahlb. Not. Fenn.* xii, n. s. p. 68 (1871).
Bythoscopina, *Berg, Hem. Argent.* p. 276 (1879).
Bythoscopini, *Puton, Cat. Hem. Pal.* p. 77 (1886); *Melich. Hom. Faun. Ceylon*, p. 146 (1903).
Agalliinæ, *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 345 (1906).

Ocelli on the face below the anterior edge of the head; vertex narrow and confounded with the front, or apparently wanting, the head being entirely deflexed; tegmina membranaceous or slightly thickened.

The Bythoscopinæ are readily recognized by the above characters and scarcely any other diagnosis is necessary.

As regards the habits of the Bythoscopinæ, and indeed of other Jassids, Prof. Ball of the Utah Agricultural College, U.S.A., makes some significant remarks:—"In giving food-plant records it seems desirable to distinguish those records that are the result of repeated observation, or made under circumstances that admit of slight chance for error, from those that are based on accidental occurrence of one or more specimens upon some given plant. The adults of most all of our leaf-hoppers fly very readily and are often found on plants adjacent to the one they feed upon, especially after a sweep net has been vigorously used in the neighbourhood. And too often there is no means of knowing whether the record is the result of one accidental specimen or the summation of a life-history study."

Synopsis of Genera.

A. Upper apical or post-costal cell of tegmina of ordinary size.
  a. Ocelli on the face between the eyes.
    a. Ocelli placed nearer to eyes than to each other.
      a′ Front (including face) about as long as broad.
        *a*². Tegmina with four apical cells .... IDIOCERUS, p. 184.
        *b*². Tegmina with three apical cells .. BALOCHA, p. 189.
      b′. Front (including face) short and broad. BYTHOSCOPUS, p. 190.
    b. Ocelli placed as near to each other as to eyes.
      a′. Scutellum very long and broad, longer than pronotum and vertex together . CHUNRA, p. 193.
      b′. Scutellum about as long or a little shorter than pronotum .... AGALLIA, p. 194.
  b. Ocelli on front just beneath the anterior margin of the vertex; scutellum not more than half as long as pronotum .... MOONIA, p. 197.
B. Upper apical or post-costal cell of tegmina very large and broad .... BUSONIA, p. 198.

Genus IDIOCERUS.

Idiocerus, *Lewis, Trans. Ent. Soc.* i, p. 47 (1836); *Fieb. Rev. Mag. Zool.* (3) iii, p. 387 (1875); *Van Duzee, Trans. Am. Ent. Soc.* xxi, p. 260 (1894); *Osb. & Ball, Proc. Davenp. Ac. Nat. Sci.* vii, p. 124 (1898); *Melich. Hom. Faun. Ceylon*, p. 146 (1903).

Type, *I. adustus*, H.-S., a Palæarctic species.

Distribution. Nearctic, Palæarctic and Oriental Regions. Probably much more widely distributed.

Osborn and Ball in their review of the North American species of *Idiocerus* have so clearly diagnosed the genus that their description may be well reproduced.

"The members of this genus are easily recognized by their large size, broad short heads, the eyes exceeding the pronotum in width, which in turn exceed that of the narrow apices of the folded tegmina, giving the insects a wedge-shaped appearance. The vertex is short and parallel-margined, rounding in front to the face; ocelli on the face between the eyes, just above the origin of the frontal sutures; the male antennæ usually bear a disc-like swelling near the tip, this is wanting, however in a few of the European and a number of the American species; the tegmina are usually longer than the abdomen and rather narrowly folded behind; there is but one transverse nervure between the sectors and that is often wanting in *I. cratægi*,* four apical and three anteapical cells being the typical number; the tegmina always possess a distinct appendix and the supernumerary cell is present in the wings."

According to Osborn and Ball, "as far as known all the species are two-brooded, the adults hibernating and depositing eggs in spring. In the case of *alternatus* * the eggs are placed near the tip of the younger twigs, usually several in a place, often causing distortion or death to the part."

In 'Indian Museum Notes,' vol. i, no. 1, p. 4, Mr. Gollan, of the Botanical Gardens at Saháranpur, gives particulars as to the habits of three species which were subsequently identified as *I. clypealis*, Léth., *niveosparus*, Léth., and *atkinsoni*, Léth. "They are found upon the mango all summer, but do most harm when the trees are in flower by damaging the reproductive organs, and thus causing interference with the setting of the fruit. I have tried mixtures of soap, tobacco, sulphur, kerosine diluted with milk, &c. upon them, but without noticeable effect. We have not had many of them this year (1888?), but there are a few upon some of the trees and quite sufficient of them to experiment with. Last year, and the year before, we had them in myriads, and both these seasons we had light crops of fruit, but this year a fine crop has set, and this I attribute to the comparative absence of these insects."

* A Nearctic species.

2397. **Idiocerus niveosparsus,** *Léth. J. A. S. B.* lviii, p. 252 (1889); *Atkins. Ind. Mus. Notes,* i, no. I, p. 5 (1889); *id. tom. cit.* no. iv, p. 187, t. xii, f. 6 (1891); *id. J. A. S. B.* lxxii, pt. ii, p. 7 (1903).
Idiocerus basalis, *Melich. Hom. Faun. Ceylon,* p. 147 (1903).

Vertex of head and face ochraceous, the former with darker suffusions on each side of a central pale line, the latter with two discal oblong piceous-brown spots; pronotum dull virescent with darker spots and markings, paler near outer angles; scutellum pale ochraceous, with three basal black spots, the central transverse, the lateral angular, behind the central two very small spots and a similar spot on each lateral margin; sternum transversely

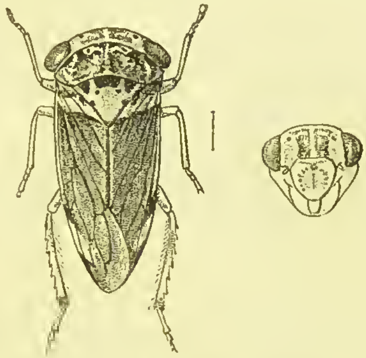

Fig. 121.—*Idiocerus niveosparsus.*

spotted with black and the anal segment of that colour; legs ochraceous, apices of the posterior tibiæ black; tegmina bronzy subhyaline, the veins ochraceous or piceous; costal area to about middle ochraceous, following this an elongate costal piceous spot and a similar spot near apex, between these spots is a hyaline space and a transverse subbasal greyish fascia; venation as in figure.

Length ♂ 4 to $4\frac{1}{3}$; ♀ 5 to $5\frac{1}{3}$ millim.

Hab. Sahâranpur (*Gollan*); Calcutta (*Ind. Mus.*); Madras (*Mus. Hongrois*); Bombay Prov., Jalalpur (*Lefroy*). Ceylon; Peradeniya (*fide Melichar*); Pattipola (*Mus. Hongrois*).

I am indebted to Dr. Horváth for the opportunity of figuring the form described by Melichar as *I. basalis*, from which the above description has been taken. The figure given in the 'Ind. Mus. Notes,' *supra*, is none too faithful. The species is variable in markings; in some specimens the scutellum has the central basal transverse spot as here figured, in others this spot is more elongate and extending to about middle of scutellum; the face is often unicolorous with the oblong piceous spots absent.

"This Jassid may in most years be found in swarms in mango topes in February, March, and April. It subsists by sucking out the juices from the young flower shoots of the mango. This insect is one of the most serious of our mango pests." (*H. W. Peal.*)

2398. **Idiocerus fasciolatus**, sp. n.

Vertex and pronotum greyish; vertex with two oblique central testaceous stripes and two black spots at anterior margin; pronotum with two curved discal testaceous stripes and four black spots, one near each lateral angle and two on anterior margin; scutellum suffused with pale testaceous, a black spot near each basal angle and two piceous spots on disk; head beneath pale ochraceous, a transverse testaceous fascia, which is deflected on each side, between eyes and beneath this fascia two black spots with pale centres, posterior margins of face and the clypeus black; body beneath and legs pale ochraceous; tegmina pale bronzy subhyaline, the veins fuscous, costal margin to near middle and a basal transverse fascia stramineous; near middle of costa is a linear black spot and a small spot of the same colour at apex; posterior costal area hyaline.

Length 4 to 4½ millim.

Hab. Tenasserim; Myitta (*Doherty*).

In some specimens the vertex is without the testaceous stripes and black spots, both being replaced by a large but very obscure pale fuscous transverse spot.

2399. **Idiocerus atkinsoni**, *Léth. J. A. S. B.* lviii, p. 252 (1889); *Atkins. Ind. Mus. Notes*, i, no. I, p. 5 (1889); *id. tom. cit.* no. IV, p. 187 (1891).
? Idiocerus quinquepunctatus, *Melich. Hom. Faun. Ceylon*, p. 146 (1903).

♂ and ♀. Elongate, flavescent; vertex infuscate in middle, with a basal spot and two spots on anterior margin black; head beneath yellow with a small black spot on each side of face at base; clypeus yellow, with a small median black longitudinal line and with minute lateral fuscous striæ; pronotum yellow, its disk fuscous, a narrow median darker fuscous longitudinal line and two black spots near anterior margin; scutellum with a triangular black spot near each basal angle and with a central narrow fuscous streak dilated anteriorly and posteriorly, a small fuscous spot on each side of its posterior termination; tegmina very pale ochraceous, subhyaline, veins fuscous, posterior costal area hyaline, costal margin ochraceous; body beneath and legs yellow, two black spots on disk of prosternum, legs sometimes streaked with fuscous.

Length 4¼ to 5 millim.

Hab. Bengal; Baliganj, Calcutta (*Ind. Mus.*); Manickganj, Pusa (*Lefroy*); Bombay (*Dixon*); Surat (*Lefroy*). Ceylon; Peradeniya? (*fide Melichar*).

I have carefully studied Melichar's description of his *I. quinquepunctatus*, founded on a single ♀ specimen, and I cannot separate it from *I. atkinsoni*, Léth.

2400. **Idiocerus clypealis**, *Léth. J. A. S. B.* lviii, p. 252 (1889); *Atkins. Ind. Mus. Notes*, i, no. I, p. 5 (1889); *id. tom. cit.* no. IV, p. 187 (1891).
Idiocerus nigroclypeatus, *Melich. Hom. Faun. Ceylon*, p. 148, t. v, f. 1, *a*, *b* (1903).

Head, pronotum and scutellum flavescent; vertex with two black spots on anterior margins which are, however sometimes absent; face immaculate or with two small black median spots; clypeus flavescent with a central longitudinal black fascia, this also is sometimes absent; scutellum with an obtusely triangular black

Fig. 122.—*Idiocerus clypealis.*

spot near each basal angle; tegmina very pale ochraceous, the veins concolorous, the posterior costal area broadly hyaline; body beneath and legs pale yellow, a somewhat large black spot on each side of prosternum.

Length $3\frac{1}{2}$ to 4 millim.

Hab. Bengal; Calcutta (*Ind. Mus.*); Pusa (*Lefroy*); Madras (*Mus. Hongrois*). Ceylon; Peradeniya (*Green*), Colombo (*fide Melichar*).

Although this small species is not always to be distinguished by the markings of the clypeus as the experience of Léthierry compelled him to assume, it is in its other markings clearly recognizable.

2401. **Idiocerus scutellatus**, sp. n.

Vertex, pronotum and scutellum ochraceous; basal margin of scutellum united with a triangular spot at each basal angle, black; head beneath and clypeus ochraceous, the latter with a black spot; body beneath and legs ochraceous; a black spot on each side of sternum between the anterior and intermediate coxæ and a

transverse black spot at base of anal segment; tegmina pale bronzy, the veins darker, the costa ochraceous, inwardly margined with brown.

Length incl. tegm. 4 millim.

Hab. Calcutta (*Atkinson Coll.*, *Brit. Mus.*).

The British Museum possesses three examples of this species which is allied to *I. clypealis*, Léth. It remains to be proved whether it is only an extreme variety of that species, though I do not think it can be, or at least I do not feel justified in treating it as such.

2402. **Idiocerus unimaculatus**, *Melich. Hom. Faun. Ceylon*, p. 149 (1903).

"Similar to *I. nigroclypeatus* (= *clypealis*) in form and size; border waxy-yellow, tegmina brownish; vertex four times as broad as in the middle, long in front, broadly arched, without markings; face strongly convex, pale yellow, almost translucent; ocelli small, clear; antennæ pale yellow; eyes large, greyish-white; pronotum three times as long as vertex and like it of a wax-yellow colour, on the surface diffusely tinted with greyish-brown; ocelli wax-yellow, with a large round black dot occupying the intermediate space between the base and the transverse line; tegmina brownish, with somewhat paler veins, at base of clavus an opaque, swollen, greenish-yellow spot, tip of second apical cell dark brown, outer terminal cell triangular; wings hyaline with brown veins; pectus and abdomen beneath pale yellow; back dark brown; legs pale yellow, at inside end of front tibiæ a black dot; all the claws brown." (*Melichar.*)

"Length ♂ 4 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

I do not know this species.

2403. **Idiocerus subopacus**, *Motsch.* (Idiocerus?) *Étud. Ent.* 1859, p. 110; *Melich. Hom. Faun. Ceylon*, p. 149 (1903).

"Subelongate; posteriorly attenuated; thickly punctate; cinereously opaque; front posteriorly, thorax medially, a bilobed spot to scutellum, and interstitial veins infuscate, somewhat piceous; head broad, anteriorly semilunately excised; ocelli subapproximate to the margin of the thorax; eyes subprominent; thorax transversely ovate, laterally subtruncate, anteriorly transversely spotted, 'subdiademata dilutiora'; scutellum triangular, rugosely punctate, the apex acute, palely testaceous; tegmina more than twice as long as broad, anteriorly punctate, posteriorly subreticulate, veins elevated." (*Motschulsky.*)

"Long. $1\frac{2}{3}$ lin., lat. $\frac{2}{4}$ lin."

Hab. Ceylon.

I do not know this species, but Melichar has identified it with a female specimen which he received from Henaratgoda.

2404. **Idiocerus astutus**, *Melich. Hom. Faun. Ceylon*, p. 150 (1903).

"A small species; perfectly unicolorous, greenish-yellow, locally more pale green or yellow to rusty yellowish; eyes brown; face paler yellow, not marked; ocelli small, vitreous; tegmina hyaline, slightly brownish-yellow with a weak golden shining lustre, veins delicate, not prominent, somewhat darker than the ground-colour, at tip of clavus a brown spot and the apical tip of the tegmina with a piceous longitudinal spot; wings hyaline, vitreous; body beneath and legs pale yellow or greenish-yellow." (*Melichar.*)

"Length ♂ 4 millim."

Hab. Ceylon; Henaratgoda (*fide Melichar*).

Have not been able to identify any specimen I have received from Ceylon with the above description.

Genus BALOCHA, nov.

Type, *B. tricolor*, Dist.

Distribution. British India and Malaya.

Vertex broad, transverse, short, anteriorly convexly rounded; ocelli placed on the face between the eyes, nearer to eyes than to each other, clypeus a little broadened posteriorly, its apex truncate; pronotum longer than vertex, about as long as scutellum, anterior margin convex, posterior margin truncate; scutellum subtriangular; legs of moderate length, posterior tibiæ strongly spinulose; tegmina much longer than abdomen, costal margin convex, apical areas three, apical margin convex.

2405. **Balocha tricolor**, sp. n.

Vertex and face orange-yellow, base of vertex between eyes

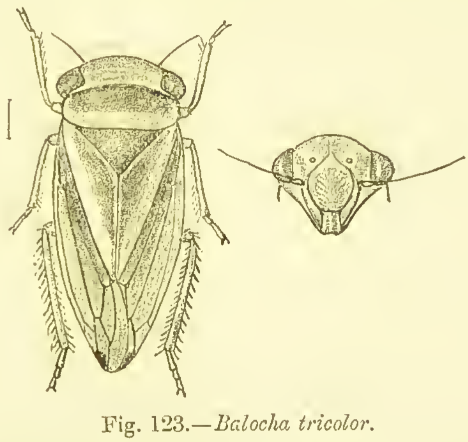

Fig. 123.—*Balocha tricolor.*

virescent; pronotum with the anterior area bright testaceous, the posterior area and lateral margins virescent; scutellum bright

testaceous; body beneath and legs pale ochraceous; tegmina with the apical area pale fuliginous with a black apical spot, the costal area to a little beyond middle broadly orange-yellow, claval area testaceous red, its inner margin virescent and again outwardly margined with testaceous red; eyes piceous.

Length incl. tegm. 4 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus BYTHOSCOPUS.

Bythoscopus, *Germ. in Silberm. Rev. Ent.* i, p. 180 (1833); *Lewis, Tr. E. S.* i, p. 48 (1836); *Fieb. Verh. z.-b. ges. Wien*, xviii, pp. 450–456 (1868); *id. Rev. Mag. Zool.* (3) iii, p. 389 (1875); *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 345 (1906).

Batrachomorphus, *Lewis, Tr. E. S.* i, p. 51 (1836).

Stragania, *Stål, Rio Jan. Hem.* ii, p. 49 (1858).

Pachyopsis, *Uhler, Bull. U. S. Geol. & Geogr. Surv.* iii, p. 466 (1877); *Melich. Hom. Faun. Ceylon*, p. 152 (1903).

Macropsis, *Ball* (part.) *Psyche*, ix, pp. 128–30 (1900); *Van Duzee* (part.), *Tr. Am. Ent. Soc.* xxi, p. 256 (1894).

Gargaropsis, *Fowl. Biol. Centr.-Am., Rhynch. Hom.* ii, p. 167 (1896).

Type, *B. lanio*, Linn., a Palæarctic species.

Distribution. Probably almost universal.

The following is Dr. Uhler's careful description of this genus, which he renamed *Pachyopsis*:—

"Broad and robust; head from above very short, bluntly rounded, including the eyes a little wider than the pronotum, the vertex and front confounded in a common convexity in both diameters; ocelli on a line with the middle of the eyes, large and placed remotely from each other; front short and broad, prominently and abruptly raised above the level of the cheeks and epistoma; epistoma flat, almost as wide as long, short and broad, the end truncated, and the sides a very little oblique, or very feebly sinuated; antennæ short, the basal joint short, very thick, rounded, the four following joints very short, narrow, tapering, the apical one with a short, oblique bristle; outer cheeks very broad, curving bluntly to concur with the tip of the epistoma; inner cheeks wider, a little longer than the epistoma with the inner margin oblique and the outer margin curving inferiorly and making an acute tip; pronotum transverse, of medium length; the posterior margin feebly concave, the postero-lateral margins oblique, with the angles a little rounded; tegmina moderately long, not valvate, narrowing towards the tip, the tip narrow and obliquely rounded, inner margin straight and the costal margin broadly arcuated; nervures straight, the outer one acutely forked near the base and its two branches each forking on the last third of the corium, apical cells short, the middle are shortest, quadrangular, the next outer one almost twice as long as the former, the next inner one widening posteriorly and of the same length as the outer, the outer marginal apical cell much longer than the other and showing a tendency to reticulation, the inner marginal

apical cell a little longer than the one next outward, acute at tip; anterior tibiæ with close long bristles, posterior ones with long, stout spines."

Straganía was originally treated by Stål as a subgenus of *Gypona*; in his 'Hemiptera Mexicana,' he placed it as a distinct genus after *Gypona*, a course in which he was followed by Fowler (1903), who was evidently unaware that Van Duzce (1894) had rightly placed it in the Bythoscopinæ, though in the genus *Macropsis*. *Gagaropsis* was originally placed by Fowler in the Membracidæ. *Pachyopsis* was quite recognized by Uhler as allied to *Bythoscopus*. Kirkaldy states (Rep. Exp. Stat. Haw. Plant. Assoc. pt. ix, p. 345) that in 1900 he was the first to point out that Lewis had fixed the type of *Bythoscopus* as *lanio*. This requires correction—(1), 1900 as the date of Kirkaldy's note is an error, it should be 1901 (Entomologist, xxxiv, pp. 339–40); (2), Germar fixed his own type, as can be seen by a reference to the description (too short) of his genus, where the first species which he includes is *Jassus lanis*, Fabr., a misprint for *J. lanio*, Linn.

2406. **Bythoscopus chlorophana**, *Melich.* (Pachyopsis) *Hom. Faun. Ceylon*, p. 153 (1903).

Head, pronotum, scutellum, body beneath and legs stramineous; tegmina pale ochraceous, with a minute piceous spot at apex of clavus and the apical costal area subhyaline; disk of pronotum distinctly finely transversely striate; scutellum obscurely subfoveate near each basal angle, an arcuate, subangulate, impressed transverse line before apical area; tegmina sparingly, obscurely, somewhat coarsely punctate; eyes piceous or testaceous; ocelli red.

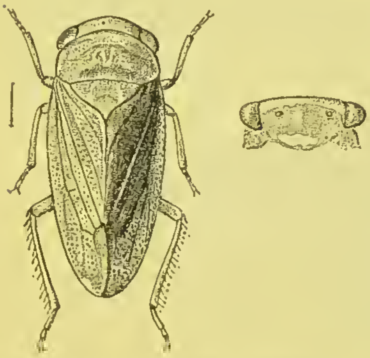

Fig. 124.—*Bythoscopus chlorophana.*

Length incl. tegm. ♂ 4, ♀ $4\frac{1}{2}$–5 millim.

Hab. Bengal; Calcutta; Pusa (*Lefroy*). Ceylon; Peradeniya, Negombo, Putalam (*Mus. Hongrois*). Tenasserim; Myitta (*Doherty*).

A cotype from the Budapest Museum is here figured.

2407. **Bythoscopus piceatus**, sp. n.

♀. Pale ochraceous; pronotum (excluding anterior and lateral areas) and the whole of the scutellum piceous-black.

Allied to *B. chlorophana*, but in addition to the great colour differences the pronotum is much more strongly transversely striate; the tegmina are rather more subhyaline at their costal

apical area and the posterior angles of the pronotum a little more acute.

Length incl. tegm. 5 millim.

Hab. Ceylon; Peradeniya (*Green*).

2408. **Bythoscopus pulvereus**, sp. n.

Vertex, pronotum, scutellum, body beneath and legs pale ochraceous; pronotum somewhat thickly speckled with fuscous and with a central pale longitudinal line; scutellum thickly speckled with fuscous, the speckles darker than on pronotum; tegmina pale subhyaline, thickly speckled with fuscous, the margins very narrowly ochraceous; wings hyaline; tarsal claws black; face with two small central black spots before apical margin; clypeus with two central longitudinal black lines; pronotum very finely transversely wrinkled, the central line levigate; posterior tibiæ thickly and somewhat longly spinulose.

Length excl. tegm. 3; exp. tegm. 10 millim.

Hab. Bengal (*Coll. Dist.*).

2409. **Bythoscopus rubrofrontalis**, sp. n.

Dull ochraceous; vertex pale testaceous; arcuated anterior and lateral areas of pronotum pale ochraceous, containing irregular castaneous spots, more strongly so on each side and much more faintly centrally; scutellum with a slightly darker spot at each basal angle; face transversely striate, only slightly medially

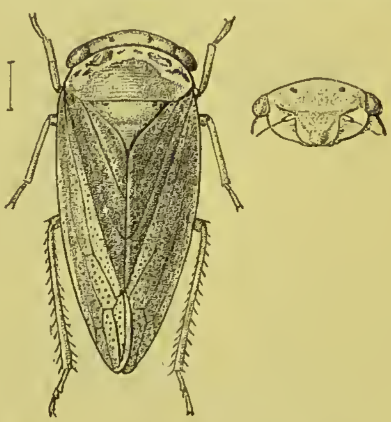

Fig. 125.—*Bythoscopus rubrofrontalis.*

interrupted; ocelli and eyes testaceous; vertex with a faint central longitudinal ridge; pronotum behind vertex moderately excavate, its disk finely transversely wrinkled; scutellum slightly foveate at each basal angle, discally transversely wrinkled; tegmina sparingly punctate.

Length incl. tegm. $5\frac{1}{2}$ millim.

Hab. Himalayas; Kotagiri (*Atkinson Coll., Brit. Mus.*).

Genus CHUNRA, nov.

Type, *C. puncticosta*, Walk.

Distribution. Oriental and Malayan Regions.

Vertex very short and broad, with eyes distinctly broader than pronotum; face narrowed between eyes, the ocelli about as near to each other as to eyes and placed a little below middle of eyes, which are obliquely long and narrow and extend along the lateral margins of the pronotum; pronotum twice as long as vertex, the posterior margin concavely sinuate; scutellum very long and broad, longer than pronotum and vertex together, transversely impressed before apical area, which is moderately raised, the apical margin broadly subacute; legs moderately slender, the posterior tibiæ thickly spinulose; tegmina with the clavus posteriorly broadened to middle and then angularly narrowed to the claval apex, apical areas four, the upper or postcostal area short and moderately broad; wings ample.

2410. **Chunra puncticosta**, *Walk.* (Jassus) *Journ. Linn. Soc., Zool.* x, p. 324 (1869).
Jassus latifrons, *Walk. tom. cit.*

Ochraceous, more or less mottled and spotted with brownish; pronotum with three longitudinal brownish waved fasciæ on each side, its central area minutely spotted with the same colour; scutellum with four large brownish basal spots, the two outermost posteriorly angulate, the two central spots subquadrate,

Fig. 126.—*Chunra puncticosta.*

two piceous spots on each lateral margin, the first central, the other near apex; body beneath and legs pale ochraceous, minutely spotted and mottled with brownish; abdomen above brownish; tegmina subhyaline with a pale ochraceous tint, costal area ochraceous spotted with black, veins brown, many, especially in claval and apical areas, frequently interrupted, a few pale spots on apical margin which is slightly infuscate (the artist has failed

to show these adequately in the figure); wings subhyaline, with a very slight fuliginous tint, the veins brown.

Length excl. tegm. ♂ 4 millim.; exp. tegm. 9 millim.

Hab. Tenasserim; Myitta (*Doherty*).—Malay Archipelago; Morty (*Wallace, Brit. Mus.*).

Genus AGALLIA.

Agallia, *Curtis, Ent. Mag.* i, p. 193 (1833); *Fieb. Rev. et Mag. Zool.* (3) iii, p. 390 (1875); *Van Duzée, Trans. Am. Ent. Soc.* xxi, p. 262 (1894); *Osb. & Ball, Proc. Davenp. Acad. Nat. Sci.* vii, p. 45 (1898); *Melich. Hom. Faun. Ceylon*, p. 150 (1903).

Type, *A. puncticeps*, Germ., a Palæarctic species.

Distribution. Nearctic, Palæarctic and Oriental Regions.

Osborn and Ball (*supra*) have so fully described this genus that I copy their diagnosis:—

"Head (together with the eyes) wider than tegmina at base; vertex transverse, crescentiform; ocelli on the face between the eyes; antennæ long, inserted under a feeble ledge, their bases partly visible, clypeus longer than wide, nearly rectangular; face as long or longer than width across eyes; pronotum long, anterior margin strongly rounding and extending forward below the eyes, side margin short or obsolete; tegmina without an appendix, five apical and three subapical cells, second transverse nervure sometimes present; marginal nerve of wing continued around apex, forming a supernumerary cell. In the Nearctic species colour varying from whitish to dark fuscous, scarcely ever more than a trace of red, yellow or green, two round black spots on vertex rarely wanting."

The above writers state that in the North-American species of *Agallia* the males are invariably smaller and darker than the females. They are all single-brooded so far as known, the larvæ being usually found in the rubbish on the ground around the base of their respective food-plants, from which they emerge to feed.

There is a considerable disparity in the general appearance of some of the species in this genus.

2411. Agallia plotina, sp. n.

♂. Vertex, pronotum and scutellum ochraceous; eyes and a small elongate spot at each basal angle of scutellum fuscous; body beneath and legs ochraceous, some lateral spots (sometimes fused) to sternum piceous; tegmina fuscous, the claval area inwardly brownish-ochraceous, its outer area stramineous; apex and costal margin paler.

♀. Tegmina more uniformly fuscous-brown, the claval area only pale ochraceous at base of outer margin and apex.

Pronotum somewhat coarsely transversely wrinkled, slightly granulose at lateral areas; scutellum a little centrally transversely

foveate on basal margin; tegminal veins outside claval area robust and prominent.

Length ♀ & ♂ 3 millim.

Hab. Calcutta (*Ind. Mus. & Coll. Dist.*).

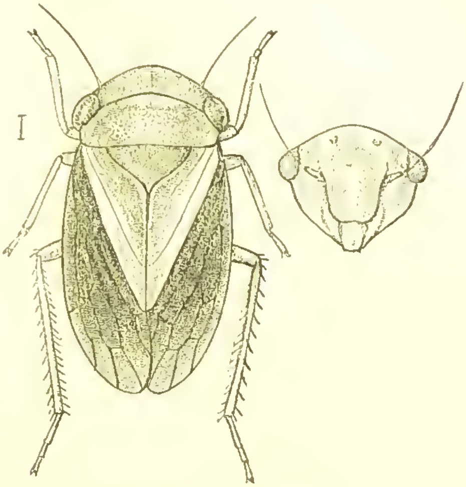

Fig. 127.—*Agallia plotina*, ♂.

The above description is based on four carded specimens, which condition renders the description of the body beneath a very difficult undertaking.

2412. **Agallia atrovenosa**, *Melich. Hom. Faun. Ceylon*, p. 152 (1903).

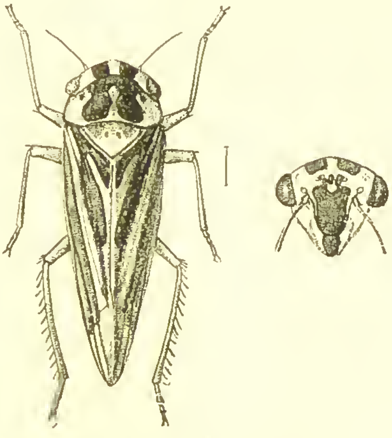

Fig. 128.—*Agallia atrovenosa.*

Head, pronotum and scutellum obscure ochraceous; vertex with two large quadrate black spots on disk; pronotum with two

broad irregular discal longitudinal black fasciæ, which are united at anterior margin; scutellum with the base piceous and two small dark discal foveate spots; face and clypeus black, the former with an anterior central ochraceous spot; body beneath black, the abdominal segmental margins and the anal segment pale luteous, the latter with two small piceous spots; legs dull ochraceous, femora more or less streaked with piceous; apices of tarsi piceous; tegmina pale ochraceous, the veins broadly black, claval area ochraceous, with basal and broad longitudinal black fasciæ united at base.

Length incl. tegm. 4½ millim.

Hab. Ceylon; Newara-Eliya, Pattipola (*Mus. Hongrois*).

Dr. Horváth has kindly enabled me to figure this species.

2413. **Agallia biplagiata**, *Melich. Hom. Faun. Ceylon*, p. 150 (1903).

"Rusty yellow-brown; vertex broad, three times as broad as in middle long, anteriorly very obtusely angulated, rounded towards the face, almost humped, finely and thickly punctured, with two large black spots, which are as far apart from each other as from eyes; in the ♀ the two spots are smaller and brown, between the spots a brownish middle line which is continued on the face; face above broad, narrowed to clypeus, moderately arched, thickly punctured, on each side a curved row of short brownish dashes or streaks, antennal pits black; antennæ rusty yellow; clypeus somewhat long, quadrangular, rusty yellow; in the ♀ the pattern of the face is very indistinct and appears nearly unicolorous, but the antennal pits and the tip of clypeus are always dark; pronotum twice as long as vertex, arched in front, nearly straight behind, with deep impressions on the upper surface near the anterior margin, forming a transverse series posteriorly to the hind margin, strongly transversely wrinkled; pronotum in ♀ rusty-yellow, in the ♂ rusty-yellow in front with a small black spot in the middle of the anterior margin, the hinder half of the pronotum more or less suffused dark brown; scutellum small, rusty-yellow, with brown in ♂ or rusty-yellow in ♀ triangles in the basal angles, between which at the base are two short longitudinal streaks mostly united into a longitudinal spot, in the middle a deep transverse line; tegmina parchment-like, rounded-off behind and covering the tip of the abdomen, with strongly thickened veins; the tegmina dark brown in ♂, costal margin, tips, claval suture and terminal border paler, so that each tegmen looks as if it was provided with a broad longitudinal streak, widened behind and suffused at apex; in the ♀ the tegmina are mostly rusty-yellow, only the veins partially darker; wings smoky-brown with dark brown veins; pectus and abdomen in ♀ rusty-yellow, above brown, in ♂ dark brown, middle of abdomen beneath rusty-brown; legs rusty-yellow, the apices of the femora generally

spotted and the tibiæ longitudinally striped, all the claws brown." (*Melichar.*)

"Length, ♂ $2\frac{1}{3}$–$2\frac{1}{2}$ millim., ♀ $2\frac{1}{2}$–3 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

2414. **Agallia quadrinotata**, *Melich. Hom. Faun. Ceylon*, p. 151 (1903).

"Body more slender aud longer than iu *biplagiata*, resembling the European *A. sinuata*, M. & R. in form and size, with four black round spots, two on the vertex further from each other than from eyes, and two which are rather larger and rather more widely separated on the pronotum near the posterior margin; face yellowish with very suffused markings on the forehead, so that a paler middle line is apparent, which on upper end is strongly narrowed, usually interrupted and similar to a reversed note of interrogation, in antennal cavities is a black transverse spot which is lengthened on cheeks nearly to the eyes; 'zugel' semicircular, the cheek veined, suture black; clypeus somewhat long, unspotted; pronotum more than three times as long as vertex, towards front strongly produced and rounded, behind flatly concave, on surface arched, finely and transversely streaked, behind the black spots a brownish longitudinal line, truncated before and behind, is usually visible; scutellum at base as far as the second transverse line rusty-brown; behind the transverse line to tip paler; tegmina somewhat long, their apices extending far beyond abdominal apex, brownish-yellow, towards costa paler, with dark longitudinal veins; membrane dirty smoky-brown with dark veins; pectus aud abdomen yellowish, the latter brownish above; legs yellowish, with all the claws black." (*Melichar.*)

"Length ♂ ♀ 3–4 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

Genus MOONIA, nov.

Type, *M. sancita*, Dist.

Distribution. British India.

Vertex very short, much shorter at middle than on lateral areas, where it is somewhat broadly and deeply grooved; ocelli placed on front just beneath the anterior margin of the vertex, nearer to each other than to eyes; basal area of head grooved beneath; face somewhat small, a little longer than broad, rounded anteriorly; pronotum somewhat gibbous, foveately depressed on each lateral area, finely centrally longitudinally carinate, posterior lateral margins oblique, anterior margin moderately produced and rounded, posterior margin nearly straight; scutellum small, about half the length of pronotum, triangular, transversely ridged near base; tegmina moderately broad, passing apex of abdomen, costal margin rounded, veins coarse and prominent, apical veins five;

legs somewhat short; posterior tibiæ grooved, shortly thickly finely spiuulose.

I have further alluded to the position of this genus wheu describing *Mesargus*, Melich. farther on.

2415. **Moonia sancita**, sp. n.

Head, pronotum, scutellum, body beneath and legs ochraceous; eyes black; face with two small dark spots just beneath the ocelli; vertex coarsely spariugly punctate; pronotum wrinkled, punctate, finely centrally longitudinally carinate, laterally foveate behind eyes; scutellum with a transverse ridge near base, the lateral margins ridged for about halfway from base; tegmina pale greyish-brown, the veins robust, spotted with brown, an indistinct greyish-white transverse fascia before middle; wings very pale fuliginous, the veins piceous; abdomen above black, the lateral margins more or less ochraceous.

Fig. 129.—*Moonia sancita.*

Length incl. tegm. 4½ millim.

Hab. Northern Iudia; Mussoorie (*Brunetti*, *Ind. Mus.*).

Geuus BUSONIA, nov.

Type, *B. amentata*, Dist.

Distribution. British Iudia.

Vertex short, broad, transverse, with eyes slightly broader than the pronotum; ocelli situate on the face between the eyes aud very much nearer to the eyes than to each other; face broad, about as long as broad, obliquely narrowed from eyes; clypeus short and broad; prouotum slightly longer than vertex, transverse, the lateral margins nearly straight; scutellum about as long as pronotum aud vertex together, subapically transversely, and sublaterally impressed, its apex acute; legs slender, posterior tibiæ thickly spiuulose; tegmina broad, apical areas four, the upper or postcostal one very large and broad; wings broad, their apices truncate; venation of both tegmina aud wings better shown than described by the accompanying figure of the type.

2416. **Busonia amentata**, sp. n.

Head, pronotum and scutellum ochraceous; lateral and apical areas of the scutellum, body beneath and legs stramineous; face (excluding apex) suffused with brownish; abdomen above piceous; tegmina pale ochraceous, the costal area black, an apical suffusion

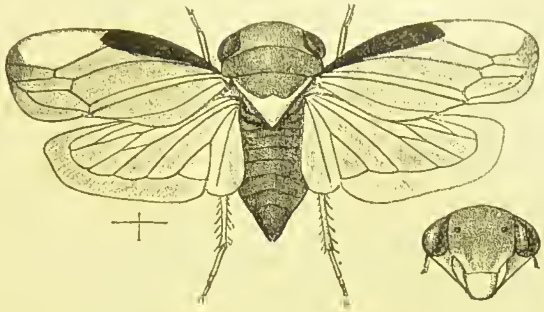

Fig. 130.—*Busonia amentata.*

piceous, the upper apical or postcostal area hyaline; wings slightly fuliginous; scutellum a little convex at base, depressed towards apical area, which with the lateral margins is smooth and glabrous.

Length excl. tegm. ♂ & ♀ $2\frac{1}{2}$–3 millim.; exp. tegm. 6–$6\frac{1}{2}$ millim.

Hab. Assam; Margherita (*Ind. Mus.*). Tenasserim; Myitta (*Doherty*).

The late Mr. Doherty sent me a series of this species from Tenasserim; all these specimens are constant in colour and markings.

2417. **Macropsis indica**, *Leth. Bull. Soc. Zool. Fr.* 1892, p. 209.

"Sordidly flavous, unicolorous; vertex short, broad, equally broad as pronotum; pronotum and scutellum covered with slender transverse striations; tegmina longer than the abdomen, shining, sparsely punctately impressed." (*Lethierry.*)

"Length ♂ 4 millim."

Hab. Mahé (*Deschamps—fide Lethierry*).

"Form and sculpture of the European species *M. prasina*, Fabr., but a little smaller" (*Lethierry*).

This species, which I have not seen, was described from a single specimen. It may probably belong to the genus *Bythoscopus*, with which *Macropsis* has been confused by many writers. I therefore can at present only copy the somewhat short description.

Subfam. III. TETTIGONIELLINÆ.

Tettigonides, *Amy. & Serv. Hém.* p. 569 (1843); *Sign. Ann. Soc. Ent. Fr.* 1879, p. 48.
Proconiida, *Stål, Hem. Fabr.* ii, p. 59 (1869).
Tettigoninæ, *Uhler, Bull. U.S. Geol. & Geogr. Surv.* iii, p. 459 (1877).
Tettigoniina, *Berg, Hem. Argent.* p. 249 (1879).
Tettigonini, *Puton, Cat. Hem. Pal.* p. 79 (1886).
Tettigonidæ, *Van Duzée, Tr. Am. Ent. Soc.* xix, p. 297 (1892).
Tettigoniidæ, *Fowler, Biol. Centr.-Am., Rhynch. Hom.* ii, p. 207 (1898).
Tettigoniellidæ, *Melich. Wien. ent. Zeit.* 1905, p. 298.
Tetigoniidæ, *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 316 (1906).

The Tettigoniellinæ are readily recognized by the position of the ocelli which are placed on the disk of the vertex; the face is large, prominent, strongly convex; cheeks long and narrow; anterior edge of the head obtuse or rounded.

The question of the name of this subfamily, based on the alteration of the name *Tettigonia* to *Tettigoniella*, is discussed on pp. 201–2.

Melichar includes in this subfamily the genera *Penthimia* and *Neodartus*, which I follow Van Duzée in locating in the Gyponinæ.* In the Neotropical species ascribed to *Tettigonia* (*Tettigoniella*) it is evident from the figures published that many distinct genera have still to be described, and a monograph might well be devoted to the beautiful insects from all parts of the world that are already known as belonging to the Tettigoniellinæ.

Synopsis of Genera.

A. Wings a little broader than tegmina, their apices rounded.
  a. Face neither centrally carinate nor foveate.
    a. Lateral margins of vertex in a line with inner margins of eyes.
      a^1. Vertex not foveate .... TETTIGONIELLA, p. 201.
      b^1. Vertex broadly foveate .... BHANDARA, p. 221.
    b. Lateral margins of vertex in a line with outer margins of eyes .... KOLLA, p. 223.
  b. Face centrally carinate.
    a. Anterior margin of pronotum not produced between eyes.
      a^1. Vertex centrally carinate but not sulcate.
        a^2. Vertex crossed by a more or less straight ridge from near one ocellus to the other .... EUACANTHUS, p. 227.

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* Melichar also includes his genus *Pythamus*, which I suspect also belongs to the Gyponinæ.

b^2. Vertex with two oblique carinations commencing at inner margins of eyes and united a little before apex .... BUNDERA, p. 228.
c^2. Vertex with two fine longitudinal ridges which angularly diverge at base .... MAINDA, p. 229.
b^1. Vertex centrally broadly sulcate .. PISACHA, p. 230.
b. Anterior margin of pronotum semicircularly rounded and produced between eyes.
a^1. Pronotum subconvex, not ridged.. SIGNORETIA, p. 232.
b^1. Pronotum strongly ridged........ PRETA, p. 234.
c. Face foveate .... ATKINSONIELLA, p. 235.
B. Wings nearly twice as broad as tegmina, their apices truncate .... SOIBANGA, p. 236.

Genus TETTIGONIELLA.

Tetigonia, *Geoffr. Hist. abrég. des Ins.* i, p. 429 (1798–99), nom. præocc.

Tettigonia, *Sign. Ann. Soc. Ent. Fr.* 1853, p. 323; *Stål, Hem. Fabr.* ii, p. 61 (1869); *Van Duzée, Trans. Am. Ent. Soc.* xxi, p. 271 (1894).

Tettigoniella, *Jacobi, Zool. Jahr. Syst.* xix, p. 778 (1904), n. nom.

Type, *T. viridis*, Linn., a Palæarctic species.

Distribution. Almost universally distributed.

Vertex anteriorly convexly or subangularly produced, the lateral margins in a line with the inner margins of the eyes; face moderately globose, neither carinate nor foveate, moderately elongate, lateral areas transversely striate; pronotum longer than vertex, the anterior margin more or less convex, posterior margin truncate; scutellum somewhat small, transversely impressed before the apical area; tegmina longer than abdomen, apical areas five; posterior tibiæ longly spinulose.

Kirby (Proc. R. Dublin Soc. vi, p. 580 (1890)), first drew attention to the fact that the generic name *Tettigonia*, Linn. (1758) must be restricted to the Orthoptera, and in his 'Syn. Cat. Orthop.' ii, p. 212 (1906) he places it in the family Phasgonuridæ. Kirkaldy has claimed that *Tetigonia*, Geoffr. is unused and should be employed. This claim is untenable for two reasons:—(1) In any case *Tetigonia* is practically synonymous with *Tettigonia*, and (2) Geoffroy refers to Réaumur, who (Mém. v, p. 150) spells the word *Tettigonia*, which tends to prove that Geoffroy's name is only a misprint. Geoffroy also refers his *Tetigonia* to a small species which he identifies with *Cicada rosæ*, Linn., and *procigale*, Réaum., which appears to be the *Typhlocyba rosæ*, auct.

Jacobi has with good reason altered the name *Tettigonia* to *Tettigoniella*, and has in error stated that Geoffroy used *Tetigonia* for *Cicada viridis*, Linn., but this species may nevertheless be accepted as the type of *Tettigoniella*. Kirkaldy has now added to the confusion he previously created by stating (Canad. Ent.

xxxix, p. 249) that, if used, *Tettigoniella* must fall before *Cicadella* (Latr. 1817).

Cicadella, Latr., is equivalent to the *Cicadæ ranatræ*, Linn., including a number of well-known insects, but not *C. viridis*, which is placed in another section and therefore cannot possibly be taken as the type of *Cicadella*, Latr., which name may, however, be used for any species placed by Linnæus in his section (*supra*) which may require a generic name. Kirkaldy's second proposition is therefore as untenable as his first, and Jacobi's substituted name clears the medley.

In looking into this unnecessarily complicated question I have been assisted by the bibliographical erudition of Mr. W. F. Kirby, and the above conclusions may be accepted as representing the views of both of us.

A. *Tegmina not longitudinally fasciate.*

a. *Pronotum more or less maculate.*

2418. **Tettigoniella ferruginea**, *Fabr.* (Cicada) *Ent. Syst.* iv, p. 32 (1794); *id. Syst. Rhyng.* p. 62 (1803); *Germ.* (Tettigonia) *Mag. Ent.* iv, p. 69 (1821); *Sign. Ann. Soc. Ent. Fr.* 1853, p. 676, t. xxii, f. 5; *Walk. List Hom. Suppl.* p. 218 (1858); *Atkins. J. A. S. B.* liv, p. 98 (1855).
Tettigonia apicalis, *Walk. List. Hom.* iii, p. 736 (1851).
Tettigonia confinis, *Walk. tom. cit.*
Tettigonia addita, *Walk. tom. cit.* p. 737.
Tettigonia gemina, *Walk. tom. cit.*; *Melich. Hom. Faun. Ceylon*, p. 155 (1903).
Tettigonia obscura, *Walk. tom. cit.* p. 738.
Tettigonia duplex, *Walk. tom. cit.*
Tettigonia reducta, *Walk. tom. cit.* p. 739.
Tettigonia longa, *Walk. tom. cit.* p. 740.
Tettigonia immaculata, *Walk. tom. cit.*

Head, pronotum and scutellum ochraceous; vertex with a black spot (sometimes divided) at apex and a basal black spot between the ocelli; face with a transverse black spot (sometimes divided) before the clypeus; pronotum with three black spots, one central near anterior margin and two at base; scutellum with a central black spot; tegmina testaceous, a spot at base and the apex rather broadly black; sternum and abdomen beneath piceous; lateral margins of sternum, abdominal segmental margins, and legs pale ochraceous or stramineous; apices of femora, bases and apices of tibiæ, apices of tarsi, abdomen above and wings black.

Var. *a*. Tegmina darker, purplish-red.

Var. *b*. As in var. *a*, but the black apical margin to tegmina preceded by greyish-brown.

Var. *c*. Apices of tegmina pale brownish-ochraceous.

Var. *d*. As in var. *c*, but vertex without spots.

Var. *e*. As in var. *c*, but tegmina with a broad subcostal purplish-red streak beyond middle.

Var. *f.* Head and pronotum spotted as in typical form, but the tegmina greenish-stramineous.

Hab. N.W. Himalayas; Mussoorie, Dehra Dun. Kumaon; Tindharia, Bhim Tal. Nepal; Soondrijal, Katmandu. Sikhim; Darjiling, Kurseong. Calcutta (*Ind. Mus.*). Coorg; Polybetta (*Lefroy*). Bombay (*Coll. Dist.*). Nilgiris (*Hampson*). Assam (*Coll. Dist.*). Assam; Margherita (*Ind. Mus.*), Khási Hills (*Lefroy*). Upper Burma (*Thompson*), Bhamo (*Fea*), Ruby Mines (*Doherty*). Tenasserim; Myitta (*Doherty*), Mergui (*Coll. Dist.*). Malay Peninsula; Perak (*Doherty*), Pahang (*Craddock*). Java (*Coll. Dist.*). Sumatra. Borneo. China. Japan.

Signoret notes that the form of the anal appendage in the female distinguishes this variable and widely-distributed species. It is very large, deeply emarginate, covering a great part of the vulvar plates, more or less round on the sides, and in shape like two approximated lobes.

The varieties here enumerated only refer to those which I have seen from British India.

2419. **Tettigoniella indistincta,** *Walk.* (Tettigonia) *List Hom.* iii. p. 739 (1851).

Tettigonia confinis, *Walk. List Hom.* iii, p. 745 (1851).

Tettigonia albidicans, *Walk. Ins. Saund., Hom.* p. 96 (1858); *Atkins. J. A. S. B.* lv, p. 198 (1886).

Head, pronotum and scutellum ochraceous; two large spots on vertex, one at base the other at apex, three spots on pronotum,

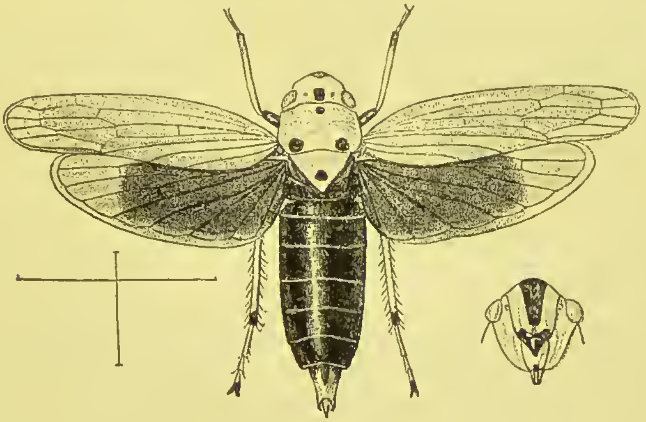

Fig. 131.—*Tettigoniella indistincta.*

two at base and one at middle of anterior area and a subapical spot to scutellum black; head beneath ochraceous, base and apex of face more or less black, in the form figured (the *albidicans*,

Walk.) the black extends as a central longitudinal fascia; abdomen above and beneath black with the segmental margins more or less ochraceous; sternum and legs ochraceous, the first discally spotted with black and the apices of femora, tibiæ and tarsi black; tegmina ochraceous or testaceous, their apices sometimes piceous, or in some forms, as in the one figured, paler in hue; wings black, the apical areas ochraceous.

Length incl. tegm. 14 to 15 millim.

Hab. Sylhet (*Brit. Mus.*).

The types of *T. indistincta* and *confinis* are unlocalised; *T. albidicans* is from Sylhet.

2420. **Tettigoniella leopardina**, sp. n.

Head, pronotum and scutellum ochraceous with greyish pubescence; vertex with five black spots, two anterior, two basal and one central, the latter sometimes much attenuated, in some specimens there is also a longitudinal streak before the eyes; pronotum with three, sometimes five, black spots; scutellum with four black spots, one at each basal angle, one discal, and one apical; face with three black spots, one at middle of anterior margin and two before clypeus, the latter also centrally black; body beneath and legs ochraceous, a spot behind each of the anterior coxæ and a double series of spots on each lateral area of the abdomen beneath (the outermost smaller) black, in some specimens there is also a central series of black spots; tegmina dull testaceous, with a black spot near end of clavus and the apical area angularly subhyaline.

Length incl. tegm. 12 millim.

Hab. Upper Assam (*Coll. Dist.*). Tenasserim; Myitta (*Doherty*).

The typical specimen described is from Tenasserim.

2421. **Tettigoniella illustris**, sp. n.

Head, pronotum and scutellum ochraceous; a central basal subtriangular spot to vertex, two discal spots to pronotum and large subobconical spots at anterior margin of scutellum, black; face with two anterior rounded and two posterior lateral spots black; sternum and legs stramineous, sternum discally spotted with black; abdomen mutilated in specimen described; tegmina purplish-red, interior claval area and apex pale golden-yellow, each tegmen with four black spots, one at base and one before middle of clavus, the outer two situate one before and the other beyond middle of disk; vertex distinctly transversely foveate.

Var. Tegmina wholly purplish-red, the internal claval area concolorous.

Length incl. tegm. 9 millim.

Hab. Assam (*Coll. Dist.*). Burma; Ruby Mines (*Doherty*).

2422. **Tettigoniella kotagiriensis**, sp. n.

Head, pronotum and scutellum pale stramineous, apical half of vertex purplish-brown, rather more than basal half of pronotum purplish-brown or testaceous; vertex with two black spots on anterior margin (sometimes obliterated) and two rather more prominent basal spots of the same colour; pronotum with a transverse series of four black spots in the anterior pale coloration; scutellum very pale ochraceous, with four fused black spots

Fig. 132.—*Tettigoniella kotagiriensis.*

on basal margin, of which the two central are smaller; head beneath testaceous, lateral margins of the face (sometimes broken) black; clypeus black: body beneath and legs very pale ochraceous, basal disk of abdomen black; tegmina chocolate-brown, apical area subhyaline, a short basal costal streak which is forked posteriorly testaceous.

Length excl. tegm. $9\frac{1}{2}$ millim.

Hab. Kotagiri (*Atkinson Coll.*, *Brit. Mus.*).

2423. **Tettigoniella melichari**, n. nom.

Tettigonia rubromaculata, *Melich. Hom. Faun. Ceylon*, p. 156 (1903), nom. præocc.

Dark golden-yellow; vertex with a large elongate spot before each eye and a transverse spot at apex, sanguineous, ocelli black; pronotum with a transverse arcuate series of four sanguineous spots; scutellum with a small obscure basal sanguineous spot which is often absent; face with the anterior margin narrowly sanguineous with a small central black spot, the latter sometimes absent; tegmina with the apical cells dull greyish, subhyaline; vertex large and prominent; face laterally transversely striate;

pronotum finely, transversely wrinkled, and with a distinct transverse impression a little before anterior margin; scutellum transversely impressed before apex.

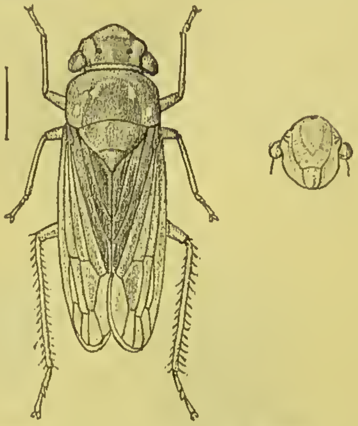

Fig. 133.—*Tettigoniella melichari.*

Length incl. tegm. 7 to 8 millim.

Hab. Ceylon; Harogam (*Green*), Peradeniya (*fide Melichar*). Tenasserim; Myitta (*Doherty*).

Melichar gives the length of this species as 5 millim.; all the specimens in my fairly long series, including a Ceylonese example, measure as above.

2424. **Tettigoniella affinis,** sp. n.

Head, pronotum, scutellum, body beneath and legs ochraceous;

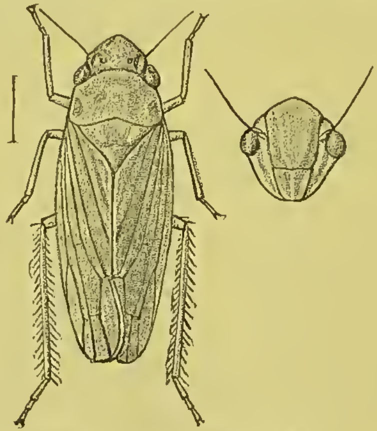

Fig. 134.—*Tettigoniella affinis.*

pronotum with a discal arcuated transverse series of four purplish-red spots; tegmina pale greyish-ochraceous with the veins deep

bright ochraceous; lateral margins of the vertex oblique, the apex obtusely subangularly produced; scutellum with an obsolete paler spot near each basal angle, the apical area also a little paler and preceded by a distinct transverse impression.

Length incl. tegm. 7 millim.

Hab. Assam; Margherita.

This species is allied to *T. melichari*, from which it differs by the more angularly produced and unicolorous vertex, the broad flattened face &c.

2425. **Tettigoniella assamensis**, *Dist.* (Tettigonia) *Ent. Month. Mag.* xvi, p. 203 (1880); *Atkins. J. A. S. B.* liv, p. 100 (1885).

Head pale yellow, with a black fascia occupying the space between the ocelli; pronotum creamy-white, the lateral margins carmine and six black spots situate transversely, the two smaller near anterior margin and the four larger across the disk; scutellum pale yellow with three black spots, two basal and one subapical; tegmina pale creamy-white, with a broad longitudinal, subcostal carmine fascia, commencing near base and extending to about the middle, a black narrow oblique fascia nearly crossing the tegmen at base and another at commencement of the carmine fascia, and five dark fuscous spots situate, one at middle of carmine fascia, three wide apart longitudinally on disk and one at marginal apex of the coriaceous portion; wings dark fuscous, with the apical margins broadly creamy-white; abdomen above piceous; body beneath piceous; legs luteous, the tarsi piceous; face orange-yellow, with a large crescent-shaped black fascia beyond middle and a small black spot at its anterior margin; head rounded in front, much broader than long and transversely channelled on disk.

Var. Vertex of head stramineous with a bluish-black spot between the ocelli; pronotum stramineous, the lateral areas more or less sanguineous and with four small bluish-black discal spots, of which two are near anterior margin, and the others, closer together, near basal margin; scutellum stramineous, with three bright black spots, two basal and one apical; tegmina creamy-white, costal area for about half the length of tegmen carmine-red, apical area pale fuscous; wings dark fuliginous; body beneath black; head beneath, prosternum and legs pale ochraceous; margins of face black; apices of tibiæ and tarsi piceous.

Length incl. tegm. 12–13 millim.

Hab. Assam; Khási Hills (*Coll. Dist. & Brit. Mus.*).

2426. **Tettigoniella pythonis**, sp. n.

Vertex of head from base to region of eyes greyishly tomentose, where there is a large central black spot with two small black spots on each side, anterior area and the eyes pale castaneous, a

central apical black spot; face greyish-white, its lateral areas with brownish transverse ridges, a basal spot, posterior submarginal spots, and clypeus, black; pronotum greyishly tomentose, with three large discal spots and four smaller spots near anterior margin black; scutellum testaceous at base, apical area greyish and with a large discal black spot; tegmina testaceous, basal

Fig. 135.—*Tettigoniella pythonis.*

area greyish-white with two black spots, from end of clavus to near apex of tegmen extending transversely and broadly to anterior margin the colour is bluish-grey spotted with black, subapical margins fuscous; head beneath and sternum greyish; legs testaceous, anterior tibiæ, apices of femora and tarsi black; abdomen beneath black, the segmental margins broadly ochraceous.

Length incl. tegm. 15 millim.

Hab. Tenasserim; Myitta (*Doherty*).

2427. **Tettigoniella pavo**, *Sign.* (Tettigonia) *Ann. Soc. Ent. Fr.* 1853, p. 675, t. xxii, f. 4; *Atkins. J. A. S. B.* liv, p. 98 (1885).

"Bluish-black; head rounded, above bluish-black, beneath yellow with the face and vertex between the eyes depressed; pronotum anteriorly somewhat narrow, yellow, with five spots or patches black, of which three are on the anterior margin, and two, corresponding to two on the base of the scutellum, are on the posterior margin; tegmina red, brown at the tips and exhibiting two bluish circles formed of an easily removeable farinose powder, one of these circles is on the cubital disk near the scutellar angle, and the other is at the tip, half in the red part of the tegmen and half in the brown tip; wings brownish; abdomen bluish-black

with the margins of the segments beneath, yellow; anal appendage as in *T. ferruginea*; legs yellow." (*Signoret.*)

Length 15 millim.

Hab. Bengal (*fide Signoret*).

I have not seen this species.

b. *Pronotum with transverse fasciate spots.*

2428. **Tettigoniella semicircularis,** *Sign.* (Tettigonia) *Ann. Soc. Ent. Fr.* 1853, p. 348, t. x, f. 5; *Atkins. J. A. S. B.* liv, p. 97 (1885).

"Head rounded anteriorly, yellow, with two facial fasciæ united on the clypeus, white; clypeus and rostrum black; vertex with two united half-moons; a median band, and on each side two spots, black; pronotum transverse with two fasciæ, the anterior one narrow and sinuated, the posterior fascia broad, uniting with the first, and on each side between them a transverse patch, black; scutellum with a semicircular fascia proceeding from the base black; tegmina fuscous, with a farinose powdery substance, lateral margins transparent; abdomen black, with the sides and borders of the segments yellow, exterior margin pale, bordered with black; anus white; legs yellow." (*Signoret.*)

Length 5 to 6 millim.

Hab. Pondicherry (*fide Signoret*).

I have not seen this species.

c'. *Pronotum centrally palely fasciate.*

2429. **Tettigoniella cornelia,** sp. n.

Vertex, pronotum and scutellum pale brownish; vertex with a

Fig. 136.—*Tettigoniella cornelia.*

large central anterior spot, a large spot at inner margin of each

eye, and a spot at area of each ocellus, stramineous, a central longitudinal and a transverse basal line pale ochraceous, two spots on anterior margin, a small central discal spot, and the ocelli, black; pronotum with three longitudinal fasciæ margined with darker brown, the central one straight and pale ochraceous, the two lateral curved and stramineous; scutellum with three longitudinal stramineous fasciæ, the central broadest, and an angulate spot of the same colour at each basal angle; face with two black spots at anterior margin and another marginal spot of the same colour before each eye, from these spots extends a dark castaneous oblique line on each side united posteriorly and longitudinally continued to base, centre of face longitudinally depressed and pale greyish; tegmina purplish, the posterior claval, apical, and basal costal areas pale ochraceous, costal margin, veins at basal costal area, a longitudinal line on apical area and the apical margin, black; wings piceous.

Length incl. tegm. 8 millim.

Hab. Tenasserim; Myitta (*Doherty*).

2430. **Tettigoniella infecta,** sp. n.

Pale fuscous-brown; vertex considerably irrorated with ochraceous markings, particularly at the anterior and posterior margins; ocelli black; head beneath ochraceous with two black spots on anterior margin, disk of face pale fuscous, centrally ochraceous, lateral striations fuscous; pronotum with the posterior margin, a central longitudinal fascia, and some indistinct markings near anterior margin, ochraceous; scutellum with two small dark discal spots and a central longitudinal ochraceous fascia; body beneath and legs ochraceous; tegmina fuscous suffused more or less with purplish-brown, claval and costal margins usually paler and more ochraceous; wings blackish; head transversely foveate, the anterior and posterior margins prominently ridged.

Length incl. tegm. 7 millim.

Hab. Calcutta (*Ind. Mus. & Coll. Dist.*).

2431. **Tettigoniella helena,** sp. n.

Vertex black, a large central apical spot which is notched posteriorly, a central elongate angulate central spot at base, four smaller spots in transverse series across disk, and a small basal spot before each eye, bright yellow; face very pale ochraceous, two elongate black spots at base, the lateral areas piceous with transverse yellow striæ; pronotum brownish, the lateral and anterior areas shaded with black, anterior margin (excluding centre), transverse spots on lateral areas, a broad central longitudinal fascia, and the posterior margin, yellow; scutellum yellow, a large angular spot near each basal angle, two small linear spots at anterior margin, and four small discal spots pale castaneous;

sternum and legs stramineous; abdomen beneath shaded with fuscous-brown; tegmina ochraceous, shaded with fuscous, black, and purplish, clavus basally mottled with fuscous and with a large elongate black spot in apical area, costal area fuscous, posterior half more or less shaded with purplish, basal and apical areas infuscate, an elongate hyaline costal spot near apex; face centrally broadly smooth and flattened, lateral areas narrowly transversely striate; vertex depressed on each side at inner margins of eyes.

Length incl. tegm. $6\frac{1}{2}$ millim.

Hab. Ceylon; Kandy (*Green*).

d. *Pronotum unspotted, unicolorous, sometimes with a darker central line.*

2432. **Tettigoniella spectra**, nom. n.

Tettigonia albida, *Sign. (nec Walk.) Ann. Soc. Ent. Fr.* 1853, p. 663, t. xxi, f. 3; *Stål, Hem. Afr.* iv, p. 117 (1866); *Kirk. Entomologist*, xxiii, p. 294 (1900); *Melich. Hom. Faun. Ceylon*, p. 157 (1903); *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 319 (1906).

White with a flavous tint, sometimes altogether very pale flavous; vertex with four black spots, two central—one at base and apex, and the other two on the lateral margins near basal

Fig. 137.—*Tettigoniella spectra.*

angles of face; tegmina with the veins very pale fuscous; body beneath and legs pale ochraceous; face darker, with the lateral margin, a central line, and the transverse striæ pale ochraceous.

Length incl. tegm. 7 to 11 millim.

Hab. Calcutta (*Brit. & Ind. Muss.*). Sara Ghat (*Ind. Mus.*). E. Bengal; Rajshai (*Ind. Mus.*), Pusa, Pupri, and Dacca (*Lefroy*). Nepal; Gowchar (*Ind. Mus.*). Janakpur (*Lefroy*). Nagpur, Surat, Palmau, and Munshigan (*Lefroy*). Bombay (*Dixon*).

Ceylon; Peradeniya, Maskeliya (*Green*).—North Australia (*fide Stål*).

"Makes itself a great nuisance, swarming round lamps in the rooms at night." (*E. E. Green.*)

"Common at the edge of Tanks.—It is able to walk." (*N. Annandale.*)

Walker described two species under the name of *Tettigonia albida*, one from Natal, the other from Mexico; these are not congeneric with one another, and both quite distinct from the species described as above.

2433. **Tettigoniella subvirescens**, *Stål* (Tettigonia), *Öfv. Vet.-Ak. Förh.* 1870, p. 734.

Vertex of head pale tawny, streaked with greyish on the basal area, at the middle of which there is an elongate black spot and three black marginal spots, one apical, the others situate a little in front of eyes; pronotum virescent, somewhat shaded with tawny on anterior area; scutellum virescent with a large triangular darker spot near each basal angle; body beneath and legs pale tawny-brown; tegmina rather bright virescent, the apex and inner area beyond clavus hyaline; wings fuliginous, their apices paler; vertex large, broad and rounded, distinctly striate on each side of anterior area; pronotum transversely striate; scutellum with a distinct transverse impression before apical area.

Length incl. tegm. 10 millim.

Hab. Assam (*Brit. Mus.*). Calcutta. Tenasserim; Myitta (*Doherty*).—Philippines.

2434. **Tettigoniella amalthea**, sp. n.

Vertex, pronotum, body beneath and legs pale yellowish; ocelli piceous; eyes margined with black; two minute piceous spots on anterior margin of face; clypeus with a central piceous line; claws and apical margins to the joints of the posterior tarsi black; scutellum lacteous with a slight ochraceous tint; tegmina lacteous, a minute black spot at base, costal, posterior, apical and claval margins very narrowly and indistinctly pale brownish, the apices of the apical veins of the same colour; vertex broadly grooved between the eyes; scutellum transversely impressed before the apical area; face moderately globose and indistinctly striate on each lateral area.

Length incl. tegm. $6\frac{1}{2}$ millim.

Hab. Ceylon; Maskeliya (*Green*).

2435. **Tettigoniella bellona**, sp. n.

Vertex, pronotum, scutellum, body beneath and legs pale saffron-yellow; tegmina golden-yellow, their bases narrowly pale saffron-yellow; a prominent black central spot on the anterior

margin of vertex; ocelli slightly testaceous; vertex slightly longitudinally ridged on each side, broadly obliquely furrowed; pronotum with a slight anterior collar; clavus indistinctly wrinkled; face globose, with a narrow central longitudinal impression, the lateral areas indistinctly transversely striate.

Length incl. tegm. 8 millim.

Hab. Nilgiri Hills (*Hampson*). Burma; Ruby Mines (*Doherty*).

Mr. Doherty sent me a single specimen of this distinctly marked species, and another example was in the collection made in the Nilgiri Hills by Sir George Hampson, and which he kindly presented to me some years ago.

2436. **Tettigoniella iocasta**, sp. n.

Vertex ochraceous with four black spots (two in oblique series on each side near base), basal margin and inner margins of eyes stramineous; pronotum and scutellum very pale tawny, the first with the anterior margin stramineous; head beneath ochraceous, face with a small rounded black spot at base, the lateral areas orange-yellow; sternum and legs stramineous; abdomen beneath more or less orange-yellow; tegmina and wings pale creamy-white, subhyaline, the first with the costal margin narrowly stramineous; vertex somewhat large and prominent, the basal margin ridged; face globose, centrally smooth, laterally obscurely striate; scutellum apparently with two central longitudinal carinations, but difficult to describe with precision, as the unique typical specimen is badly pinned at that region.

Length incl. tegm. 7 millim.

Hab. Calcutta.

B. *Tegmina longitudinally fasciate.*

a. *Pronotum with transverse and lateral fasciæ.*

2437. **Tettigoniella rubromaculata**, *Sign.* (Tettigonia) *Ann. Soc. Ent. Fr.* 1853, p. 668, t. xxi, f. 11; *Walk. List Hom. Suppl.* p. 218 (1858); *Atkins. J. A. S. B.* liv, p. 101 (1885).
Tettigonia cardinalis, *Walk.* (*nec Fabr.*) *List Hom.* iii, p. 744 (1851).

Body above deep black; vertex red with an irregular angular black mark, including a subquadrate black mark which proceeds from the posterior margin; face flat, with two black stripes which unite on the clypeus, sides tawny; rostrum piceous; pronotum black, with a transverse band and lateral bands red; scutellum reddish with a large angulate black spot near each basal angle; tegmina black, with pale longitudinal streaks not extended on the apical area, three of these are sanguineous, one subcostal, one above claval suture, and the other in claval area, between the upper two is an ochraceous streak becoming duplex beyond middle, all the streaks above claval suture here and there

transversely connected; wings fuliginous with the veins piceous; apex of abdomen testaceous; sternum and legs testaceous-red; abdomen beneath black, with the segmental region and a central longitudinal line testaceous-red; vertex transverse, much shorter than pronotum.

Length incl. tegm. 12–14 millim.

Hab. Nepal? (*Brit. Mus.*). Sikhim (*Ind. Mus.*). Darjiling (*Coll. Dist.*).

2438. **Tettigoniella dunsiriensis**, sp. n.

Head ochraceous; vertex with two broad elongate black spots and a small central basal black spot between them; face with a quadrate central spot and two sublateral fasciæ united posteriorly and continued on the clypeus, black; pronotum ochraceous, the anterior marginal area palely testaceous, the basal margin and three central fasciæ black, thus apparently enclosing four large transverse ochraceous spots; scutellum black, two central linear spots, apical area, and lateral margins ochraceous; abdomen above and beneath piceous, the segmental margins paler; sternum testaceous; legs ochraceous; tegmina piceous, the veins testaceous, a longitudinal claval streak, another above clavus, and a subcostal streak, sanguineous; wings fuliginous, the veins piceous; face broad, moderately globose, the lateral areas transversely striate; pronotum centrally transversely wrinkled; scutellum profoundly impressed before apical area, the apex thickened; posterior tibiæ thickly finely spinulose.

Length excl. tegm. 7 millim.; exp. tegm. 19 millim.

Hab. Dunsiri Valley (*Coll. Dist.*).

2439. **Tettigoniella pupula**, *Kirby* (Tettigonia), *J. Linn. Soc., Zool.* xxiv, p. 169, t. vi, f. 10 (1891); *Melich. Hom. Faun. Ceylon*, p. 155 (1903).

"Head orange-red above, with a large oval black spot on the hind border and a smaller black spot in front, just visible from above; pronotum red on the sides in front, a middle stripe widening behind, and the hind border black; scutellum with a wide testaceous band in the middle and black on the sides; face and under surface of body testaceous; a stripe on each side of the face, the knees, and front tibiæ at least, red; tegmina black for two-thirds of their length and fuscous beyond, inclining to fusco-hyaline on the edges, the inner margin is broadly bordered with red nearly as far as the black colour extends, and the base of the costa is also more or less red." (*Kirby.*)

"Length incl. tegm. 5 millim."

Hab. Ceylon; Pundaluoya (*Green, Brit. Mus.*).

I only know this species by the unique type in the British Museum.

b. *Pronotum with transverse fasciæ.*

2440. **Tettigoniella marpessa**, sp. n.

Vertex ochraceous, with two black spots before anterior margin; face with a central black spot at base, on each side of this spot a transverse dark line reaching eyes, a sublateral line on each side united posteriorly and continued on clypeus fuscous-brown; pronotum ochraceous with two transverse black fasciæ, one near anterior margin straight, the other before base and arcuate, near each lateral margin a short oblique black line; scutellum pale testaceous, a black spot at each basal angle, and the lateral margins narrowly black; body beneath and legs stramineous; tegmina ochraceous, claval margins, a central claval streak, apex, and very broad costal area black, the apical area with paler markings; face prominent, its disk flattened, the lateral areas narrowly strongly obliquely striate; scutellum deflected to apical area, before which it is strongly transversely impressed.

Length incl. tegm. 5 millim.

Hab. Tenasserim; Myitta (*Doherty*).

c. *Pronotum with longitudinal fasciæ.*

2441. **Tettigoniella quadrilineata**, *Sign.* (Tettigonia) *Ann. Soc. Ent. Fr.* 1853, p. 669, t. xxi, f. 12; *Atkins. J. A. S. B.* liv, p. 101 (1885).

Head, pronotum and scutellum ochraceous; vertex with two central black longitudinal fasciæ; face with two small quadrangular spots at anterior margin and two larger oblong spots before clypeus, black, marginal spots to face and the clypeus black; pronotum with two broad central longitudinal fasciæ parallel with those on vertex and a submarginal fascia on each side black; scutellum with three black spots; sternum and legs ochraceous, bases of tibiæ and apices of tarsi black; abdomen beneath dark ochraceous, with transverse black spots; tegmina red or testaceous, with narrow, interrupted, longitudinal black lines, tegminal apices paler.

Length incl. tegm. 12 millim.

Hab. Nilgiri Hills (*Hampson*).

d. *Pronotum more or less maculate.*

2442. **Tettigoniella inflammata**, sp. n.

Sulphur-yellow, sometimes with a testaceous tint; vertex with two broad oblique black fasciæ fused at base; pronotum with a central transverse series of four black spots, sometimes (as in

the specimen figured) more or less fused; scutellum with a large black spot at each basal angle; tegmina with the costal margin much widened beyond middle, a broad apical margin, and two

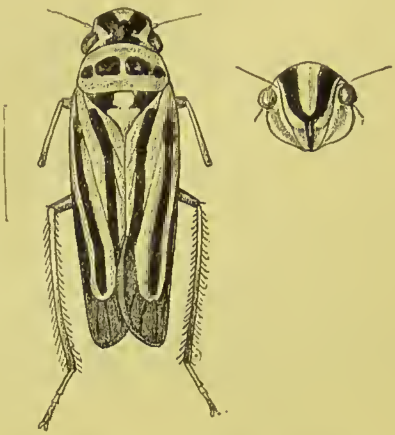

Fig. 138.—*Tettigoniella inflammata.*

longitudinal fasciæ black, of the latter one is above and the other in claval area, and neither reach the base; lateral margins of face and the clypeus black; femora, apices of tibiæ, large sternal spots, and the abdomen beneath black, the latter with the segmental margins narrowly ochraceous; vertex robust, transversely foveate between eyes; pronotum roundly depressed anteriorly; scutellum with a sharp transverse incision before apical area; tegmina moderately smooth.

Length incl. tegm. 12–12½ millim.

Hab. Assam; Margherita (*Doherty*).

2443. **Tettigoniella sulphurata,** sp. n.

Yellow, of a sulphureous tint; vertex with three black spots, one transverse at apex and two round at base; eyes black; pronotum with six black spots, three near anterior and three at posterior margin, the latter sometimes fused; scutellum with three large black spots, one at each basal angle and the other at apex; tegmina with the costal margin abruptly widened before apex, two broad longitudinal fasciæ, and the apical margin black, of the two longitudinal fasciæ one is central but not reaching base, the other extends along posterior claval margin to apex; face with an elongate spot on each side and a spot before clypeus black; abdomen beneath with transverse black spots; legs more or less banded with black; vertex transversely foveate; pronotum centrally ridged near anterior margin, behind which

it is transversely impressed; tegmina finely wrinkled and obscurely punctate.

Length incl. tegm. 11 millim.

Hab. Burma; Ruby Mines (*Doherty*).—W. Yunnan (*Anderson*).

2444. **Tettigoniella indiga**, sp. n.

Head, pronotum and scutellum ochraceous; vertex with four discal black spots; head beneath ochraceous, lateral margins of face interrupted anteriorly, black; clypeus with a central black line; pronotum with four discal spots and the sublateral margins black; scutellum with a black spot near each basal angle; body beneath and legs ochraceous, bases of tibiæ, and tarsi (excluding bases) black; sternum and abdomen beneath with transverse black spots; tegmina ochraceous or testaceous, with interrupted narrow black longitudinal lines, their apices black or luteous.

Var. Pronotum and scutellum without the black spots.

Length incl. tegm. 11–12 millim.

Hab. Nilgiri Hills (*Hampson*).

2445. **Tettigoniella sandaracata**, sp. n.

Vertex of head sanguineous, a looped, central, submarginal line on each side of apex, a triangular spot at base and the areas of the ocelli, piceous; pronotum fuscous-brown, with a transverse series of four red spots, the marginal spots notched; scutellum fuscous-brown, with four small basal marginal spots and the apex red; tegmina very pale fuscous, the claval area dark fuscous-brown, a costal fascia, an inner claval marginal fascia, and some spots before apical area red, extreme costal and claval margins black; wings dark fuliginous or piceous; head, body beneath and legs fuscous-brown; a central longitudinal fascia to face and the anterior and intermediate legs (more or less) red, a central black spot to face on its anterior margin.

Var. *a.* Abdomen beneath red.

Var. *b.* Tegmina above clavus (excepting base and apex) red.

Length incl. tegm. $9\frac{1}{2}$–10 millim.

Hab. Nilgiri Hills (*Hampson*). Burma; Ruby Mines (*Doherty*).

2446. **Tettigoniella sikhimensis**, sp. n.

Vertex of head black, with three large red spots, the central spot bifid posteriorly, the other spots at inner margins of eyes; pronotum black with a transverse series of four large red spots, the two lateral spots notched anteriorly; scutellum red with two triangular black spots at base; tegmina black, the discal veins yellow, and with three longitudinal red fasciæ, one subcostal, another above clavus, and the third in clavus, the two upper fasciæ do not extend into the apical area; head beneath red,

margins of face black; body beneath and legs brownish-ochraceous, anterior and intermediate femora and tibiæ testaceous; vertex moderately narrowed anteriorly, but the lateral margins at base not on a line with the outer margins of eyes.

Length incl. tegm. 12 millim.

Hab. Sikhim (*Atkinson Coll., Brit. Mus.*).

2447. **Tettigoniella habilis**, sp. n.

Vertex of head and pronotum testaceous; vertex with two spots on apical margin and a central bifid spot near base black; pronotum with a narrow central transverse anterior marginal spot and the basal margin before scutellum black; scutellum black; tegmina testaceous, their apices fuliginous, with the costal and claval margins black, the costal margin more broadly black from about one-third from base; wings piceous; body beneath and legs reddish-ochraceous; a black spot near each anterior coxa; disks of the abdominal segments somewhat greyish; vertex robust, a distinct basal ridge between and behind the ocelli; tegmina almost smooth.

Length incl. tegm. 12 millim.

Hab. Nilgiri Hills (*Hampson*).

2448. **Tettigoniella mutata**, *Melich.* (Tettigonia) *Hom. Faun. Ceylon*, p. 155 (1903).

Head, pronotum and scutellum pale ochraceous; vertex with

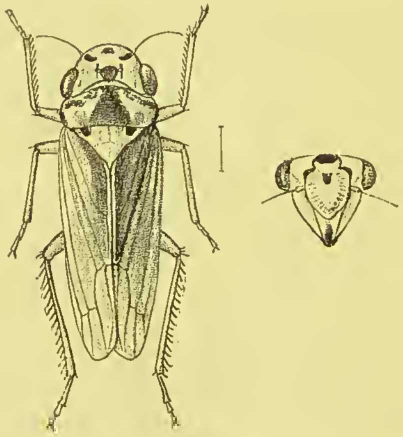

Fig. 139.—*Tettigoniella mutata.*

three black linear transverse spots at anterior margin, and a large central basal piceous spot, on each side of which is a short sanguineous line; pronotum with a broad central longitudinal

triangular piceous fascia, the anterior margin speckled with the same colour, on each side of the base of the central fascia is an oblique bluish spot; scutellum with two black spots at base; body beneath and legs stramineous; face with an anterior spot and a curved black line before each eye; tegmina subhyaline, claval area with an interior submarginal dark line, an infuscate posterior and anterior fascia, and a minute piceous spot at its apex; apices of the tarsi piceous.

Length incl. tegm. ♂ & ♀ 5½–6 millim.

Hab. Ceylon; Peradeniya, Nura-Eliya, Weligama, Kanthaley, Pattipola (*Mus. Hongrois*).

e. *Pronotum unicolorous, unspotted.*

2449. **Tettigoniella alcmena**, sp. n.

Vertex, pronotum and scutellum sordidly greyish; vertex with a large discal spot enclosing the ocelli and reaching base, and two small transverse spots on anterior margin black; eyes black; lateral margins of pronotum narrowly black; body beneath sordidly greyish, the lateral marginal areas of face, the clypeus, legs, and lateral margins of abdomen ochraceous; anterior tibiæ with black longitudinal lines; tegmina lacteous, the veins, a broad discal longitudinal fascia extending from near base to about middle, posterior margins of clavus, and a longitudinal spot near its apex, tawny-brown; apex of scutellum tawny-brown; wings pale lacteous, semihyaline; face transversely striate on each lateral area; scutellum transversely depressed before apical area, which is moderately gibbous.

Length incl. tegm. 6 millim.

Hab. Assam; Margherita (*Coll. Dist.*).

2450. **Tettigoniella? ceylonica**, *Melich.* (Tettigonia) *Hom. Faun. Ceylon*, p. 156 (1903).

"Whole body above and beneath pale yellowish; eyes brown, on the front at each side near anterior margin a black dot, and a similar much smaller dot on the tip of the front where it passes into the forehead, the surface of the first in the middle faintly transversely deepened, on the transverse furrow lie the large and sometimes brownish ocelli; in middle of posterior margin of pronotum is a black dot, which is usually very small; tegmina hyaline, pale yellowish, with tender yellowish veins, the terminal marginal vein brown to black, membrane hyaline; legs pale yellowish; the dorsum commonly orange-yellowish." (*Melichar.*)

"Length ♂ & ♀ 5 to 5¼ millim."

Hab. Ceylon; Peradeniya, Henaratgoda (*fide Melichar*).

Unknown at present to the writer.

2451. **Tettigoniella ? fuscovenosa,** *Melich.* (Tettigonia) *Hom. Faun. Ceylon*, p. 157 (1903).

"Very similar to *T. ceylonica*; head, pronotum, and scutellum pale yellowish; a small triangular dot in the middle of hind border of vertex; ocelli, a small dot at tip of front, the suture of the forehead from the margin of the front to the cavity of the wings on each side black; hind border of pronotum narrowly margined with black, and on each side of pronotum a short transverse streak; tegmina dirty-white, the veins and the costal and terminal veins brown to black; underside and legs pale yellowish, the spinules of the posterior tibiæ black; claws brown; on the scutellum a small black triangle." (*Melichar.*)

"Length ♂ & ♀ 6 millim."

Hab. Ceylon; Pattipola, Bandarawella (*fide Melichar*).

Not found in any of the collections I have received from Ceylon.

2452. **Tettigoniella ? exigua,** *Melich.* (Tettigonia) *Hom. Faun. Ceylon*, p. 158 (1903).

"A very small slender *Tettigonia*, reminding one of a *Typhlocyba*; black above, pale yellow beneath; front triangularly produced anteriorly, anterior border rounded to the forehead, arched above and marked with black, the black markings narrowed anteriorly so that the borders of the front before the eyes remain free, it is lengthened on tip of front and sends a short process on tip of forehead, on the process are two approximate pale yellow spots which are indented on the outer side, in the small concavity lie the small vitreous ocelli, in the neck a rusty-yellow middle streak which is produced on the pronotum and scutellum; pronotum as long as the front, anteriorly shallowly rounded; tip of scutellum usually rusty-yellow; face narrow, longish, arched, with indistinct transverse stripes; antennæ pale yellow; eyes black; tegmina narrow, long, piceous-brown to black, costal margin bordered with yellow, interrupted behind the middle by the black ground-colour, at end of yellow border a white triangular marginal spot separated from the yellow border by an oblique red dash, membrane piceous, concolorous with the tegmina; wings slightly shining, fuliginous; underside and legs pale yellowish-white; claws brown." (*Melichar.*)

"Length ♂ & ♀ 4 millim."

Hab. Ceylon; Peradeniya, Colombo (*fide Melichar*).

I cannot adjust this description with any species I have received from Ceylon.

2453. **Tettigoniella? gagatina**, *Melich.* (Tettigonia) *Hom. Faun. Ceylon,* p. 159 (1903).

"Upperside black; underside and legs pale yellowish, the black markings of the front divided into four longitudinal stripes by five pale yellow longitudinal lines, the middle stripes at the anterior end with a pale yellow transverse streak, the middle line most distinctly developed, the lateral ones correspond to the side margins of the face, the middle ones are usually suffused centrally; eyes black; costal margin of tegmina narrowly produced with pale yellowish to middle, in middle black, behind which is a conical-shaped, in front more pointed, behind broader, marginal spot, divided by an oblique black line, at the inner angle of the marginal spot is a crescent-shaped hyaline transverse spot more convex in front, apical margin, which is broadly rounded and in middle slightly excavated, narrowly bordered with pale white; back black; legs pale yellowish; claws dark." (*Melichar.*)

"Length ♂ 5 millim."

Hab. Ceylon; Pattipola (*fide Melichar*).

I do not know this species.

2454. **Tettigoniella? festiva**, *Melich.* (Tettigonia) *Hom. Faun. Ceylon,* p. 159 (1903).

"Front black, a heart-shaped spot at tip, a small triangular spot in the middle of the posterior border of the front, on each side a spot on the front posterior high corner, and a spot on the inner side of the ocelli yellowish; forehead and face yellowish, with the heart-shaped spot hanging together in the tip of the front, on sides blackish; antennæ pale yellow; in middle of pronotum a spit-shaped pale yellowish longitudinal fascia, hind margin of pronotum in the middle bordered with yellowish, at sides of laminæ several small dots; tegmina carmine-red, at base and on clavus spotted with dark brown and pale, veins blackish, membrane black; underside and legs pale yellowish. Distinguished by its special size." (*Melichar.*)

"Length 7 millim."

Hab. Ceylon; Colombo (*fide Melichar*).

I have not seen this species.

Genus **BHANDARA**, nov.

Type, *B. semiclara*, Sign.

Distribution. Tenasserim and Malayan Subregion.

Vertex of head broad, rounded in front, the lateral margins almost level with the inner margins of eyes, disk broadly foveate where it is centrally longitudinally impressed; face broad, moderately globose, its disk flattened and its lateral areas transversely

striate; clypeus prominent and compressed; pronotum with the anterior margin moderately rounded and centrally truncate, the posterior margin distinctly concavely sinuate, lateral margins almost straight; scutellum broad, a little raised on basal area; tegmina loug and narrow, inner and outer margins parallel, apices rounded, four apical areas; anterior tibiæ strongly haired interiorly; posterior tibiæ thickly finely spinulose.

2455. **Bhandara semiclara**, *Sign.* (Tettigonia) *Ann. Soc. Ent. Fr.* 1853, p. 666, t. xxi, f. 9.
Tettigonia sanguiflua, *Walk. List Hom. Suppl.* p. 222 (1858).

Vertex of head bluish-black with the anterior margin ochraceous; pronotum ochraceous, the anterior area and the basal margin bluish-black; scutellum bluish-black, the apex dull sanguineous; face testaceous, lateral margins from beyond eyes bluish-black; body beneath and legs ochraceous or testaceous; tegmina pale ochraceous subhyaline, a much angulated longitudinal carmine-red fascia occupying clavus aud continued to near apex, its angulations

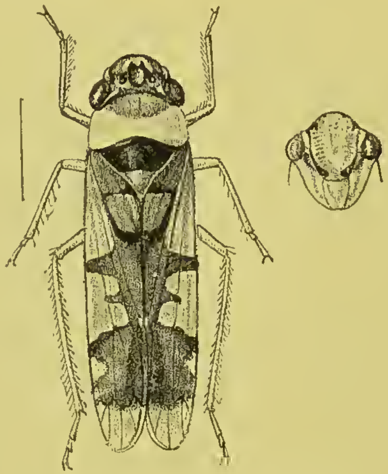

Fig. 140.—*Bhandara semiclara.*

transverse, near centre of clavus a large bluish-black spot; vertex foveate at base, posterior tibiæ somewhat longly spinose.

Length incl. tegm. 11 millim.

Hab. Tenasserim; Myitta (*Doherty*). Mergui (*Colls. Dist. & Ind. Mus.*).—Malay Peninsula, Borneo, Sumatra.

The figure and description is taken from Mergui specimens which are constant in character. A considerable amount of colour variation is found among Malayan examples of the species.

Genus KOLLA, nov.

Type, *K. insignis*, Dist.

Distribution. British India, Malay Peninsula and Archipelago.

Allied to *Tettigoniella* bnt differing by the structnre of the vertex of the head, which is subconically narrowed anteriorly with the lateral margins in a line with the outer margins of the eyes, near the inner margin of the eyes the vertex is also more or less foveate; face with the lateral areas somewhat strongly transversely striate and centrally longitudinally smooth and flattened.

A. *Tegmina with pale costal margins, but not longitudinally fasciate.*

2456. **Kolla insignis**, sp. n.

Vertex of head ochraceous, two large spots on anterior margin nnited anteriorly, three central angulate spots connected by oblique lines, and a transverse spot in front of each eye, black; pronotnm bronzy-black with a waved transverse ochraceous fascia near anterior margin; scutellum ochraceous with a large black spot at each basal angle; body beneath and legs pale ochraceons; anterior margin of face with a transverse black fascia enclosing a

Fig. 141.—*Kolla insignis.*

small ochraceons spot at middle; tegmina bronzy-black, the costal area ochraceous; scutellum with a strong transverse impression before apical area; pronotnm finely transversely striate.

Length incl. tegm. 7 millim.

Hab. Knrseong (*Ind. Mus.*); Bhim Tal, Knmaon (*Annandale*); Katmandu.

2457. **Kolla unimaculata**, *Sign.* (Tettigonia) *Ann. Soc. Ent. Fr.* 1854, p. 26; *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 734; *Atkins. J. A. S. B.* liv, p. 99 (1885).

Tettigonia paulula, *Walk. List Hom. Suppl.* p. 219 (1858); *Melich. Hom. Faun. Ceylon,* p. 154 (1903).

Tettigonia kinbergi, *Stål, Freg. Eug. Resa, Ins.* p. 288 (1859).

Tettigonia igniceps, *Walk. Journ. Linn. Soc., Zool.* x, p. 304 (1869).

Head, pronotum and scutellum pale testaceous; vertex with two somewhat large spots on anterior margin and two very small spots on disk, black; eyes black; basal margin of pronotum black, triangularly produced at its middle; scutellum with two elongate basal black spots; body beneath and legs ochraceous, sometimes more or less stramineous; tegmina black, the costal area very broadly stramineous; pronotum anteriorly somewhat slightly rugulose; scutellum with a strong transverse impression before apical area.

Length incl. tegm. 5–6 millim.

Hab. Calcutta (*Ind. Mus.*). Burma; Ruby Mines (*Doherty*). Tenasserim; Myitta (*Doherty*).—Malacca; Philippines; Flores (*Brit. Mus.*).

2458. **Kolla vesta**, sp. n.

Vertex very pale ochraceous, with a transverse sinuate line before apex which is connected with a central longitudinal line, piceous, margins of ocelli piceous; face ochraceous, a central longitudinal fascia and extreme lateral margins stramineous, a central black spot at base; inner margins of eyes beneath black; pronotum purplish-grey, anterior area ochraceous, a transverse piceous spot near each lateral margin; scutellum purplish-grey, the lateral margins ochraceous; body beneath saffron-yellow, the legs stramineous; tegmina purplish-grey, the costal area to about middle ochraceous, remaining costal area and apex subhyaline; vertex somewhat short, transverse, the lateral margins in a line with the eyes, the disk moderately depressed; face centrally smooth and flattened, the lateral areas broadly transversely striate.

Length incl. tegm. 5½ millim.

Hab. Kangra Valley (*Dudgeon, Coll. Dist.*).

2459. **Kolla lineatus**, sp. n.

Pale brownish-ochraceous; vertex with a black central discal spot; pronotum with a central longitudinal fuscous fascia, the lateral margins narrowly of the same colour; tegmina with the veins and margins fuscous; face centrally ochraceous, the lateral areas purplish-brown, a shining black spot at middle of basal margin, and a black spot near inner margin of each eye; legs ochraceous, finely streaked with fuscous; vertex subangulate, the lateral margins in an oblique line with the outer margins of eyes; face

narrowly centrally smooth and flattened, the lateral areas broadly obliquely striate.

Length incl. tegm. 7 millim.

Hab. Ceylon; N. C. Province (*Green*).

2460. **Kolla mimica**, sp. n.

Vertex and pronotum virescent, sometimes more or less whitely tomentose; vertex with three discal black spots in transverse series, one central, the others surrounding each ocellus; scutellum more or less yellowish, sometimes with a distinct dark longitudinal line; body beneath and legs virescent, becoming more or less ochraceous in older and discoloured specimens; tegmina greyish-white, the veins either distinctly or very faintly and obsoletely infuscate; face centrally narrowly smooth and flattened, laterally broadly transversely striate, the striæ and the margins of the central longitudinal smooth interruption more or less infuscate, a small black basal spot near inner margin of each eye; wings pale lacteous, semihyaline.

Length incl. tegm. 5–6 millim.

Hab. Calcutta; Bengal; Pusa (*Lefroy*).

This species has a close resemblance in colour, markings and variation to *Tettigoniella spectra*, Dist. It is, however, to be generically separated by the angular vertex, the lateral margins of which are in a line with the outer margin of the eyes.

B. *Tegmina longitudinally fasciate.*

2461. **Kolla mungphuensis**, sp. n.

Head, pronotum and scutellum bright yellow; vertex with two large black spots, one at base, the other at apex; eyes black; scutellum with a large black spot near each basal angle; head beneath pale yellow, face with a central, longitudinal, narrow black fascia; body beneath imperfectly seen owing to the typical specimen being in a carded condition; legs pale tawny; tegmina greyish subhyaline, with two longitudinal castaneous fasciæ, one in clavus, the other subcostal; base of costal margin narrowly black.

Length incl. tegm. 6½ millim.

Hab. Sikhim; Mungphu (*Atkinson Coll., Brit. Mus.*).

2462. **Kolla opponens**, *Walk.* (Tettigonia) *List Hom.* iii, p. 757 (1851); *Sign. Ann. Soc. Ent. Fr.* 1853, p. 667, t. xxi, f. 10; *Atkins. J. A. S. B.* liv, p. 102 (1885).

Testaceous-red; vertex with two spots on anterior margin and a transverse spot at base black; pronotum with a broad anterior

margin, centrally connected with an angulated basal margin, black; scutellum with a large black spot in each basal angle; tegmina with the costal and claval margins and a broad discal longitudinal fascia, commencing a little beyond base and extending to apex, black; face and clypeus black, the former with a central testaceous spot; body beneath and legs pale ochraceous, abdomen beneath with transverse black fasciæ; sternum with lateral black spots.

Length incl. tegm. 8–9 millim.

Hab. "North India" (*Warwick, Brit. Mus.*). Assam; Margherita (*Doherty*). Kurseong (*Ind. Mus.*); Darjiling (*Coll. Dist.*); Bhim Tal, Kumaon (*Annandale*). Burma; Ruby Mines (*Doherty*).

2463. **Kolla canidia**, sp. n.

Vertex ochraceous, two united spots on anterior margin, a transverse spot at base, and the eyes, black; pronotum black with two large transverse discal luteous spots (scutellum mutilated in typical specimen); face black, centrally luteous, cheeks luteous; body beneath black, legs luteous; tegmina sanguineous, anterior, posterior and claval margins, apex, and a broad discal longitudinal fascia, commencing at about one-third from base, black; vertex short, rounded in a line with the eyes; pronotum with a slight anterior collar.

Length incl. tegm. 7 millim.

Hab. Sikhim (*Coll. Dist.*).

2464. **Kolla gregalis**, sp. n.

Sanguineous; vertex with a large spot at apex and two small spots at base black; pronotum with a central longitudinal fascia, widened anteriorly and connected with a broad basal margin, black; scutellum black with a central sanguineous spot; tegmina piceous, with two broad longitudinal sanguineous fasciæ, one near costal and the other near inner margin; wings fuliginous; head beneath testaceous, face broadly margined with black; sternum and abdomen beneath black; legs brownish.

Allied to *K. opponens*, Walk., but a broader and differently marked and coloured species.

Length incl. tegm. $7\frac{1}{2}$–8 millim.

Hab. Assam (*Coll. Dist.*); Shillong (*Ind. Mus.*); Darjiling (*Brunetti*).

Genus EUACANTHUS.

Evacanthus, *Lep. & Serv. Enc. Méth.* x, p. 612 (1825).
Amblycephalus, *Curtis, Brit. Entomol.* xii, p. 572 (1835); *Edwards, Tr. E. S.* 1888, p. 13.
Euacanthus, *Burm. Handb. Ent.* ii, p. 116 (1835).
Eucanthus, *Van Duzée, Trans. Am. Ent. Soc.* xxi, p. 281 (1894).

Type, *E. interruptus*, Linn., a Palæarctic species.

Distribution. Palæarctic and Oriental Regions. Probably much more widely distributed.

Face longitudinally carinate; vertex with an anchor-shaped ridge, crossed about its apical third by a more or less distinct straight ridge, which runs from near one ocellus to the other; on each side of the base a callus or a short outwardly oblique keel, the lateral and apical margins strongly reflexed; pronotum rounded anteriorly, the anterior margin truncate between the eyes, lateral margins nearly straight, posterior margin moderately sinuate; scutellum broadly subtriangular, with a transverse impressed line before the apical area; other characters generally as in *Tettigoniella*.

2465. **Euacanthus extremus**, *Walk.* (Tettigonia) *List Hom.* iii, p. 761 (1851); *Sign. Ann. Soc. Ent. Fr.* 1853, p. 663, t. xxi, f. 4; *Stål* (Euacanthus), *Öfv. Vet.-Ak. Förh.* p. 495 (1862); *Dist. Sci. Res. 2nd Yark. Miss.* p. 15 (1879); *Atkins.* (Tettigonia) *J. A. S. B.* liv, p. 100 (1885).

Vertex of head black, the lateral and anterior margins and the

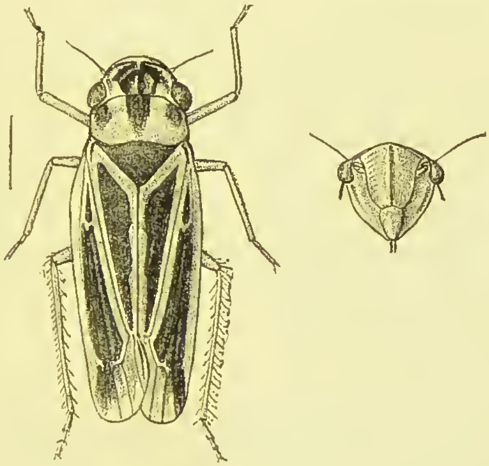

Fig. 142.—*Euacanthus extremus.*

anterior portion of the central ridge ochraceous, lateral basal areas stramineous; pronotum stramineous, with a broad central fascia

and two lateral spots which sometimes occupy the whole of the lateral areas black; scutellum black; tegmina piceous, the costal and inner and sometimes the whole of the claval margins stramineous, the apical areas sometimes much paler; body beneath and legs ochraceous; wings bronzy brown.

Length incl. tegm. 7½ to 8 millim.

Hab. "North India" (*Warwick, Brit. Mus.*); Murree (*Stoliczka*).

Walker's type is here figured.

2466. **Euacanthus repexus**, sp. n.

Black; anterior and posterior margins of vertex and extreme lateral and posterior margins of pronotum ochraceous; legs ochraceous; tegmina black, costal, inner, and claval margins narrowly ochraceous or stramineous; face black, smooth, with a distinct central longitudinal ridge; vertex of the head with the ridges fine but very distinct; pronotum finely transversely striate; scutellum strongly transversely impressed before apical area; tegmina finely punctate, the whole upper surface very sparingly pubescent; posterior tibiæ finely but rather longly spinulose.

Var. Tegmina with three pale lines in claval area, and with the costal margin more broadly ochraceous or stramineous.

Length incl. tegm. 7 to 7½ millim.

Hab. Sikhim; Kurseong (*Ind. Mus.*).

Genus **BUNDERA**, nov.

Type, *B. venata*, Dist.

Distribution. Tenasserim.

Vertex about as long as breadth between eyes; the lateral margins sinuate at inner margins of eyes, anteriorly rounded, centrally longitudinally carinate, and with two oblique carinations, which, commencing at inner margins of eyes, are united a little before apex; face elongate, globose, centrally longitudinally carinate; pronotum slightly shorter than vertex, narrowed anteriorly, the anterior margin convex, the posterior margin slightly sinuate; scutellum broad, subtriangular; tegmina longer than the abdomen, costal margin distinctly rounded, apical areas four; legs slender, posterior tibiæ thickly spinulose.

2467. **Bundera venata**, sp. n.

Vertex ochraceous, with a large black discal spot; a small black spot on each side of anterior margin, and between them a small pale brownish spot; a minute dark spot on each side of posterior margin a little before eyes; face pale ochraceous, a black spot on each side of anterior margin, the central carination brownish; body beneath and legs pale ochraceous; pronotum black, the

lateral margins ochraceous; scutellum black, the lateral and apical margins ochraceous; tegmina black, the costal area and the basal and sutural margins (narrowly) ochraceous, apical area somewhat opaque; vertex a little globose, the carinations distinct and

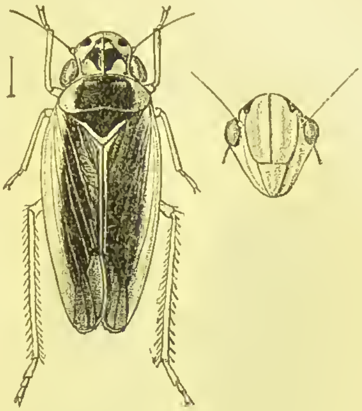

Fig. 143.—*Bundera venata.*

prominent; pronotum discally finely transversely striate, laterally deflected, the posterior angles a little roundly prominent; lateral and apical margins of the scutellum ridged; tegmina with the black discal area very finely wrinkled.

Length incl. tegm. 4½ millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus **MAINDA**, nov.

Type, *M. præculta*, Dist.

Distribution. British India.

Vertex about as long as breadth at base, the anterior margin somewhat acute, but as seen from above with the base of face, rounded as in figure of type, centrally traversed with two fine longitudinal ridges which angularly diverge at base, lateral margins at inner margins of eyes sinuate; ocelli near posterior margin; face elongate, a little narrowed posteriorly, centrally longitudinally finely carinate, its posterior margin truncate; clypeus somewhat long and posteriorly narrowed; pronotum about as long or very slightly longer than vertex, the lateral margins oblique, faintly centrally longitudinally carinate; scutellum broadly subtriangular; tegmina longer than abdomen, apical areas four, moderately narrowed at apices, claval veins inwardly curved; legs somewhat slender, posterior tibiæ thickly spinulose.

2468. **Mainda præculta**, sp. n.

Vertex pale ochraceous, with four black spots arranged in pairs, two at base and two nearer apex; anterior margin and base of face as seen from above, both narrowly piceous; face pale ochraceous, a piceous fascia on each side of central carination and a sublateral fascia on each side of the same colour; margins of the clypeus piceous; a black spot on the cheeks behind each eye; pronotum fuscous brown, the margins and a central line ochraceous; scutellum pale ochraceous, a subangulate spot near each basal angle,

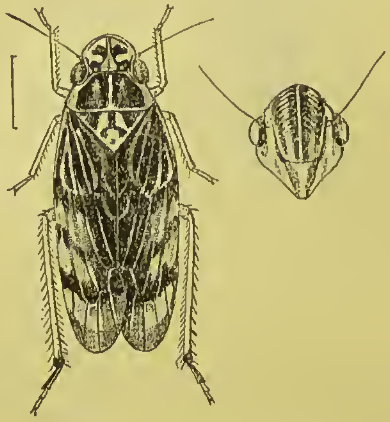

Fig. 144.—*Mainda præculta.*

a central line diverging posteriorly, and a minute subapical spot, black or piceous; tegmina ochraceous, thickly marked and mottled with piceous (the figure shows these markings better than words can describe them, but they consist principally of longitudinal basal streaks, three transverse fasciæ, and a broad apical margin); body beneath and legs ochraceous, apices of posterior tibiæ and bases of posterior tarsi piceous.

Length incl. tegm. 8 millim.

Hab. N.W. India; Kumaon (*Annandale*).

Genus PISACHA, nov.

Type, *P. primitiva*, Dist.

Distribution. Burma, Tenasserim.

Vertex of head about as long as space between eyes, anteriorly narrowed, centrally broadly sulcate on basal half; ocelli placed on posterior disk, a little farther apart from each other than from eyes; face narrow, elongate, narrowed posteriorly, finely centrally carinate, strongly transversely ridged on each side; pronotum with

the lateral margins nearly straight, posterior margin strongly concavely sinuate; scutellum transversely impressed before apical area; legs moderately slender, tibiæ finely spinulose; tegmina elongate, apical cells four, innermost largest, a discal transverse vein almost level with apex of clavus.

2469. **Pisacha primitiva**, sp. n.

Golden-yellow; legs pale stramineous; apical area of tegmina greyish-white, with the veins golden-yellow; vertex with two black spots at base, two farther apart near middle, and the

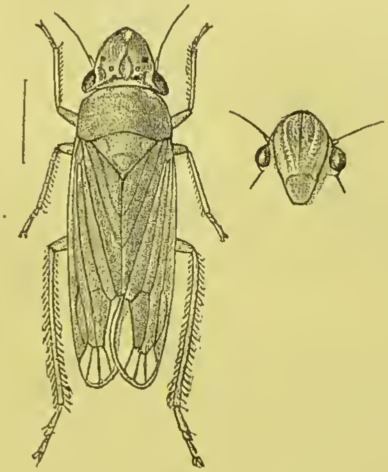

Fig. 145.—*Pisacha primitiva.*

margins of the ocelli also black; the margins of the sulcation to vertex distinctly ridged; anterior area of pronotum coarsely rugosely wrinkled; face granulose, laterally shortly coarsely transversely ridged; posterior tibiæ thickly finely spinulose.

Length incl. tegm. 9 to 10 millim.

Hab. Burma; Ruby Mines (*Doherty*). Tenasserim; Myitta (*Doherty*).

2470. **Pisacha pallescens**, sp. n.

Head, pronotum, scutellum, body beneath and legs stramineous; tegmina greyish-white, subhyaline, with the base narrowly stramineous; vertex with two small black spots on the apical margin, margins of the ocelli black; vertex almost centrally sulcate from base to apex; pronotum with an arcuate ridge on anterior area;

scutellum very finely wrinkled; face very indistinctly centrally longitudinally carinate.

Length incl. tegm. 8 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Mr. Doherty sent me three specimens of this species from Tenasserim. I have not yet seen it from Burma.

Genus SIGNORETIA.

Signoretia, *Stål, Freg. Eug. Resa*, p. 289 (1858); *Atkins. J. A. S. B.* liv, p. 91 (1885); *Melich. Hom. Faun. Ceylon*, p. 159 (1903).

Type, *S. malaya*, Stål.

Distribution. British India and Malay Peninsula.

Body elongate; vertex with eyes as broad as pronotum, anteriorly rounded, semilunate, subconcave, posteriorly transversely carinate; face large, convex, centrally longitudinally strongly ridged; ocelli placed marginally in foveæ a little in front of eyes; pronotum longer than broad, anteriorly semicircularly rounded and produced between eyes, posteriorly subconvex, anteriorly moderately depressed, and before apex with two approximate transverse carinations; scutellum small, triangular; tegmina longer than the abdomen, a series of transverse veins before apical area, apical cells four; legs of moderate length, posterior tibiæ finely spinulose.

2471. **Signoretia malaya**, *Stål* (Thamnotettix), *Öfv. Vet.-Ak. Förh.* 1855, p. 192; *id.* (Signoretia) *Freg. Eug. Resa*, p. 290, t. iv, f. 9, *a*, *b* (1858); *Atkins. J. A. S. B.* liv, p. 91 (1885).

Whitish with a virescent tint, vertex and body beneath with an ochraceous tint; the tarsi and the anterior and intermediate tibiæ more or less distinctly virescent; veins to tegmina subfuscous, entire clavus, space between costa and the second longitudinal vein, also some of the other veins on both sides, somewhat roughly punctate; pronotum strongly foveately impressed before anterior margin, its surface finely granulose, two short central longitudinal ridges on anterior disk; in most specimens the transverse carination to vertex has a small dark central spot; face transversely ridged on each side.

Length incl. tegm. 7 millim.

Hab. Tenasserim; Myitta (*Doherty*). Mergui (*Coll. Dist.*). —Malacca.

2472. **Signoretia aureola**, sp. n.

Vertex, pronotum and scutellum stramineous, two black spots on vertex and another on anterior area of pronotum; body beneath and legs golden-yellow, basal area of abdomen beneath castaneous; tegmina golden-yellow, a large spot at base and the apical area greyish-white, the latter with the veins golden-yellow;

pronotum finely granulose, anteriorly subfoveate on each side and more distinctly so centrally; face convex, transversely ridged on each side and strongly longitudinally carinate.

Fig. 146.—*Signoretia aureola.*

Var. *a.* The two black spots on vertex present, but the spot on pronotum absent.

Var. *b.* Vertex and pronotum unspotted.

Length incl. tegm. 9 millim.

Hab. Burma; Ruby Mines (*Doherty*).

2473. **Signoretia greeni**, sp. n.

Vertex of head chocolate-brown, a central longitudinal fascia,

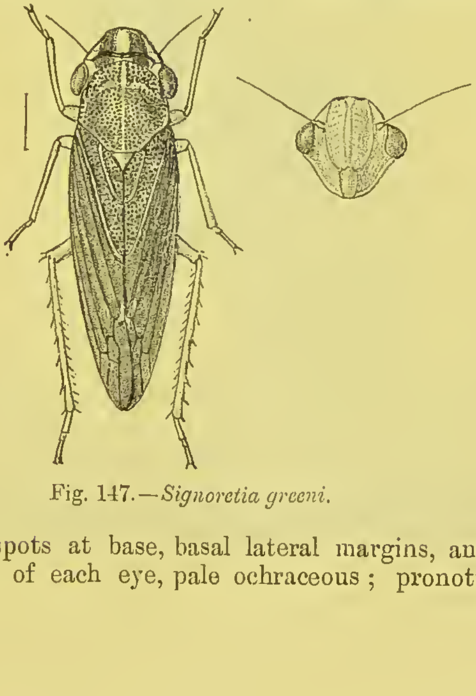

Fig. 147.—*Signoretia greeni.*

two central spots at base, basal lateral margins, and a spot at inner margin of each eye, pale ochraceous; pronotum greyish-

brown, anterior area darker brown, with a central longitudinal pale carinate line; scutellum dull greyish; body beneath and legs stramineous; tegmina dark chocolate-brown, claval inner margin and vein greyish, posterior costal area a little paler, a minute greyish spot on inner margin at apex of lower ulnar area; apices of tarsi piceous; face with two small transverse piceous spots on anterior margin, medially longitudinally carinate, laterally transversely striate; pronotum finely granulose, more coarsely so on anterior area; tegmina finely and obscurely punctate, coarsely punctate on clavus.

Length 7 millim.

Hab. Ceylon; Maskeliya (*Green*).

Genus PRETA, nov.

Type, *P. gratiosa*, Melich.

Distribution. British India.

Vertex of head subtriangular, excavate, the lateral margins strongly reflexed, transversely carinate a little before eyes, and thence more finely centrally longitudinally carinate to apex; face moderately convex, very strongly centrally longitudinally ridged; pronotum very long, transversely impressed and ridged before anterior margin, two strong central longitudinal ridges; scutellum small, triangular; legs of moderate length, posterior tibiæ finely spinulose; tegmina longer than the abdomen, clavus with a central transverse vein and an oblique vein near base, an irregular series of transverse veins before apical area, apical cells four.

2474. **Preta gratiosa,** *Melich.* (Signoretia) *Hom. Faun. Ceylon*, p. 160, t. iv, f. 8 *a, b* (1903).

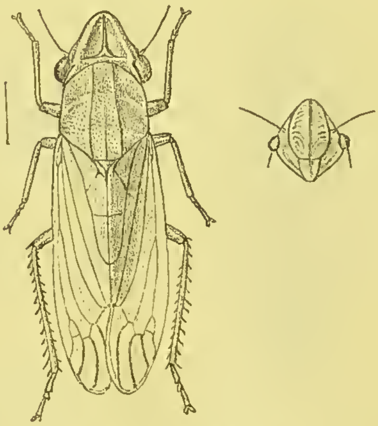

Fig. 148.—*Preta gratiosa.*

Greyish-white; vertex, body beneath and legs with an ochraceous tint; tegmina with the veins on apical area fuscous and

with a small spot of the same colour at apex of clavus; central carination to vertex forked at base; pronotum finely granulose, the anterior transverse impression more profound on the lateral areas; between the two central longitudinal ridges there is a fine central carination on the posterior half; posterior tibiæ very finely spinulose.

Length incl. tegm. 7 millim.

Hab. Ceylon; Peradeniya (*Green*), Negombo (*fide Melichar*). Tenasserim; Myitta (*Doherty*).

A specimen from Tenasserim is here figured, which agrees in every particular with an example from Ceylon sent to me by Mr. E. E. Green.

Genus **ATKINSONIELLA**, nov.

Type, *A. decisa*, Dist.

Distribution. British India.

Vertex very short, little more than half the length of pronotum, prominently foveate on each side parallel with the anterior margin of eyes; ocelli on disk about as far apart from each other as from eyes; face long, transversely striate, foveate on disk, the foveation

Fig. 149.—*Atkinsoniella decisa.*

neither reaching base nor clypeus; pronotum broad, transverse, lateral margins almost straight; scutellum with the apical area centrally broadly convexly ridged; legs moderately long, posterior tibiæ thickly spinulose; tegmina longer than abdomen, apical areas four, the posterior one very large, posterior claval margin straight, beyond claval apex the tegmen is moderately valvate.

2475. **Atkinsoniella decisa**, sp. n.

Vertex black, a yellow spot on disk and a greyish spot at inner margin of each eye; face black, the central sulcation, margins of the cheeks, and a line behind each eye, greyish; pronotum black, with two large discal transverse ochraceous spots; scutellum black; body beneath and legs black, intermediate tibiæ centrally greyish; abdomen above black; tegmina ochraceous, the costal margin (narrowly) and the inner and apical margins broadly black; wings black.

Length incl. tegm. 10 millim.

Hab. Darjiling (*Atkinson Coll.*, *Brit. Mus.*).

I only know this species by two specimens in the Atkinson Collection, and have not seen it in any of the other Indian collections which I have examined.

2476. **Atkinsoniella maculata**, sp. n.

Head, pronotum, scutellum, body beneath, legs and tegmina ochraceous; two spots on vertex at the region of the ocelli, three spots in transverse series near the anterior margin of pronotum, a spot at each basal angle of scutellum, a central transverse spot at base and two elongate linear spots on posterior lateral margins of face, a central spot on clypeus, central disk of sternum, apices of femora, bases of tibiæ, and the apices of the tarsi, black; tegmina with narrow costal margins, a costal spot a little before apex and the apical margin black; vertex short, about half the length of pronotum, strongly foveate on each side at inner margins of eyes; face foveate on disk, the foveation neither reaching base nor clypeus, the lateral areas transversely striate; pronotum with a narrow anterior collar preceded by a distinct transverse impression; lateral margins of the scutellum broadly ridged; tegmina very finely and obscurely wrinkled and punctate.

Length incl. tegm. 10 millim.

Hab. Assam; Shillong (*Coll. Dist.*).

Genus **SOIBANGA**, nov.

Type, *S. bella*, Walk.

Distribution. British India.

Vertex broad, robust, about half as long as breadth between eyes, centrally, discally, transversely depressed and a little foveately depressed on each side before eyes; ocelli on posterior disk a little nearer to eyes than to each other; face broad, moderately convex, centrally longitudinally subsulcate; pronotum about as long as vertex, lateral margins nearly straight; scutellum medially narrowed to apex; legs slender; tegmina elongate, somewhat narrow, apical areas four, clavus broad; wings very broad, their apices subtruncate, two transverse veins before apical area.

The great breadth of the wings and the structure of the vertex are the salient points of this genus.

2477. **Soibanga bella**, *Walk.* (Tettigonia) *List Hom.* iii, p. 778 (1851); *Sign. Ann. Soc. Ent. Fr.* 1854, p. 10, t. i, f. 8; *Atkins. J. A. S. B.* liv, p. 99 (1885).

Body above and beneath black; vertex with a central longitudinal line, two transverse discal lines and macular mottlings on anterior area, ochraceous; pronotum with two transverse broadly curved discal fasciæ, a submarginal discal anterior line and a transverse spot behind each eye, ochraceous; four small discal ochraceous spots to scutellum; striations to face, two large spots

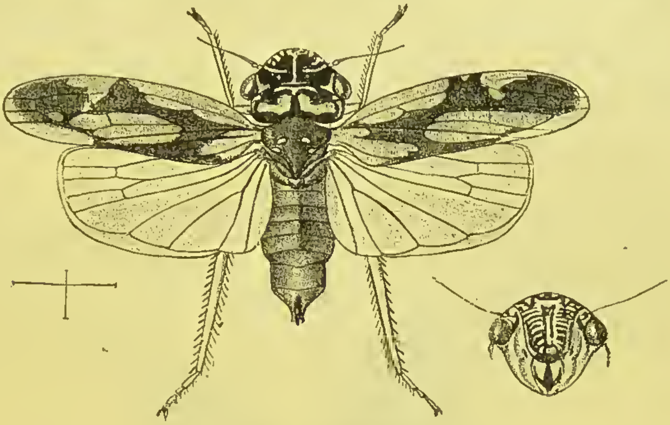

Fig. 150.—*Soibanga bella.*

to clypeus, and the legs, ochraceous; femora more or less spotted with fuscous; tegmina black, costal area from base to about middle, a costal angulate spot beyond middle, a large basal claval spot, a large longitudinal spot above apical area of clavus, and a small rounded spot beyond it, ochraceous; apical margin greyish-brown; wings palely fuliginous.

Length excl. tegm. 5½; exp. tegm. 13 millim.

Hab. "North India" (*Warwick, Brit. Mus.*). Silhet (*fide Signoret*).

The unique type is here figured. The specimen has been badly pinned at the junction of the pronotum and scutellum, and has been drawn as thus mutilated by our artist.

The following genera and species reached me after the Tettigoniellinæ had gone to press. Both genera may be placed near *Fisacha*. The typical specimen representing the first is not in very good condition, but I have followed the plan pursued throughout the Rhynchota of inserting every species, even though its exact location may be rendered difficult by more or less imperfection in the specimen described.

Genus MILEEWA, nov.

Type, *M. margheritæ*, Dist.

Distribution. At present only known from Assam.

Vertex long, broadly conically produced anteriorly, as long as breadth between eyes and as long as pronotum; ocelli on disk almost in a line with the anterior margins of the eyes, a fine central longitudinal carination and an oblique carination on each side of anterior area; face globose, two carinations united posteriorly on basal area, continued by a single fine central carination to clypeus which is also centrally ridged; pronotum short and broad, the lateral margins obliquely straight; scutellum small, triangular; legs slender, the tibiæ spinulose; tegmina moderately broad, their apices sinuately obliquely truncate; apical cells three.

2478. **Mileewa margheritæ**, sp. n.

Head, pronotum and tegmina chocolate-brown; scutellum stramineous; a greyish subhyaline patch on each tegmen near end of clavus, its base on inner margin and angularly extended on disk,

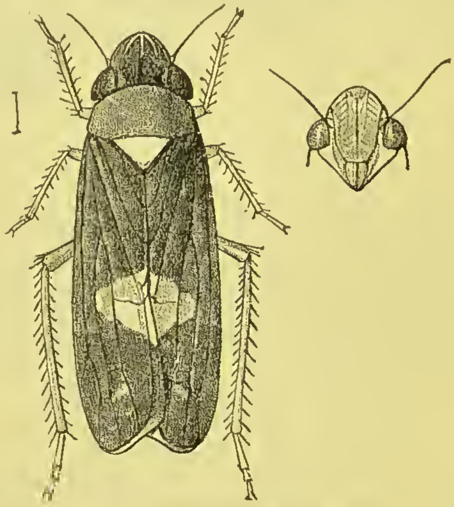

Fig. 151.—*Mileewa margheritæ.*

a small transverse spot on apical area, and the apical margins (narrowly) of the same colour; body beneath and legs stramineous; vertex with the base of the central and the two sublateral apical carinations ochraceous, remainder of central carination black, the surface thickly finely punctate; pronotum thickly finely punctate; scutellum smooth, shining; face somewhat strongly transversely striate on each side, depressed before clypeus.

Length incl. tegm. 4½ millim.

Hab. Assam; Margherita.

Genus UJNA, nov.

Type, *U. delicatula*, Dist.

Distribution. British India.

Vertex broadly elongate, a little longer than breadth between eyes, somewhat conically rounded anteriorly, the disk moderately flattened, not convex, a little depressed before apex; ocelli on disk in a line a little before the anterior margins of the eyes, farther apart from each other than from eyes; face long, distinctly longitudinally carinate for less than half its length, very indistinctly carinate on the remaining area, this carination angularly forked at base; clypeus broad, not or very obscurely longitudinally ridged; pronotum shorter than vertex, anteriorly produced but truncate between the eyes, lateral margins straight; scutellum moderately large, subtriangular; tegmina elongate, apical cells three, innermost very long; legs slender, tibiæ finely spinulose.

2479. **Ujna delicatula**, sp. n.

Vertex pale indigo-blue, inner margins of eyes, basal halves of lateral margins, and two oblong discal spots greyish-white, three small obscure ochraceous spots at basal margins; pronotum purplish-brown, with a central longitudinal ochraceous line; scutellum piceous-brown, a central longitudinal ochraceous line not

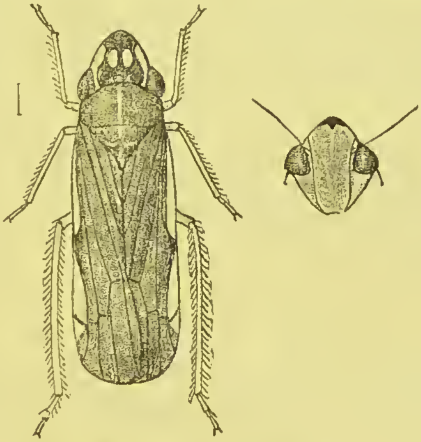

Fig. 152.—*Ujna delicatula.*

extending beyond basal area and the apex ochraceous; body beneath and legs pale stramineous; face with a black spot at basal margin; tegmina pale bronzy-brown, the costal area interrupted near middle, pale ochraceous with an oblique sanguineous line near its apex.

Length incl. tegm. 3½ millim.

Hab. Ceylon; Peradeniya (*Green*).

Mr. Green sent me a single specimen of this beautifully marked species.

2480. **Ujna consors**, sp. n.

Vertex pale ochraceous, the base to near ocelli castaneous, this coloration acutely extended upward beyond the ocelli, an anterior transverse black spot enclosing a small pale apical spot, and two central discal black lines enclosing an oblong pale spot, inner margin of eyes pale ochraceous; pronotum and scutellum chocolate-brown, each traversed by a central longitudinal ochraceous line; body beneath and legs pale stramineous; tegmina pale fuscous-brown, the costal area dark fuscous for about halfway from base and again at apex, the intermediate area greyish-white, crossed beyond its middle by an oblique brown line, tips of the veins at apical margin a little fuscously maculate.

Length incl. tegm. $3\frac{1}{2}$ millim.

Hab. Tenasserim; Myitta (*Doherty*).

I received a single specimen of this species from Mr. Doherty.

Subfam. IV. GYPONINÆ.

Gyponina, *Stål* (part.), *Öfv. Vet.-Ak. Förh.* 1870, p. 736; *Berg, Hemipt. Argent.* p. 257 (1879); *Van Duzée, Trans. Am. Ent. Soc.* xix, p. 297 (1892); *id. tom. cit.* xxi, p. 281 (1894) *.
Scarides, *Amy. & Serv.* (part.) *Hem.* p. 576 (1843).
Gyponinæ, *Ashm. Smith. Cat. Ins. N. J.* p. 443 (1890).
Gyponidæ, *Fowl. Biol. Centr.-Amer., Rhynch. Hom.* ii, p. 293 (1903).
Penthimiinæ, *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 307 (1906).

As in the *Tettigoniellinæ* the ocelli are placed on the disk of the vertex; the face is flat or slightly convex, more or less impressed across the base beneath the prominent and acute or rounded and overhanging anterior edge of the head; cheeks at least moderately expanded.

Division *PENTHIMIARIA*.

In this division the vertex is short, considerably broader than long, transverse and rounded anteriorly, not produced.

Synopsis of Genera.

A. Scutellum transverse, broader than long.
  a. Scutellum longer than vertex, its basal margin considerably longer than lateral margin.

* As Van Duzée remarks:—"Dr. Stål's use of this term has priority over that of Dr. Berg, but he included under it such a heterogeneous assemblage of genera as to give to it a significance quite distinct from that intended by Dr. Berg." Van Duzée employs it in the sense of the latter authority.

a'. Vertex in length equal to about half the breadth between eyes, short, transverse, anteriorly convexly rounded and depressed .... PENTHIMIA, p. 241.

b'. Vertex in length equal to about two-thirds the breadth between eyes, subelongate, anteriorly obliquely rounded and reflexed .... NEODARTUS, p. 246.

b. Scutellum about as long as vertex, its basal margin only slightly longer than lateral margin .... TAMBILIA, p. 247.

B. Scutellum elongate, longer than broad.

a. Face short, broad, obliquely depressed beneath eyes; anterior tibiæ not dilated .... HARANGA, p. 248.

b. Face somewhat perpendicularly deflected, moderately convex; anterior tibiæ strongly dilated .... BALALA, p. 250.

Genus PENTHIMIA.

Penthimia, *Germ. Mag. Ent.* iv, p. 46 (1821); *Stål, Hem. Afric.* iv, p. 107 (1866); *Fieb. Rev. Mag. Zool.* (3) iii, p. 392 (1875); *Atkins. J. A. S. B.* liv, p. 112 (1885); *Van Duzée, Tr. Am. Ent. Soc.* xxi, p. 287 (1894); *Melich. Hom. Faun. Ceylon*, p. 161 (1903)*.

Type, *P. atra*, Fabr., a Palæarctic species.

Distribution. Nearctic, Palæarctic, Ethiopian, Oriental, and Australasian Regions.

"Body oval or ovate, somewhat depressed; head obtuse, anteriorly rounded; vertex somewhat sloped, slightly convex before the middle; lateral margins of face somewhat distinct; frons a little convex; clypeus flat or very slightly convex; eyes moderate; ocelli placed on the disk of the vertex, more remote from each other than from eyes; pronotum transverse, a little narrowed anteriorly, anterior margin convex; tegmina margined at the apex, valvate behind the clavus, apical areas four or five; legs moderate, femora compressed, posterior tibiæ strongly spinose." (*Stål.*)

2481. **Penthimia melanocephala**, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 95 (1863); *Melich. Hom. Faun. Ceylon*, p. 162 (1903).

Head black; pronotum, scutellum and tegmina castaneous, inner claval margin black, apex of tegmen very pale fuscous with whitish and black shadings; body beneath black, legs piceous or black; vertex punctate; pronotum finely transversely wrinkled; scutellum punctate, the basal area somewhat obliquely depressed

* Melichar places this genus in the *Tettigoniellinæ*, from which he does not separate the *Gyponinæ*. I follow Berg and Van Duzée in keeping these subfamilies distinct.

before a transverse impression separating it from the apical area which is distinctly transversely striate; tegmina punctate, the clavus more strongly so; posterior tibiæ strongly spinose, the spinules castaneous.

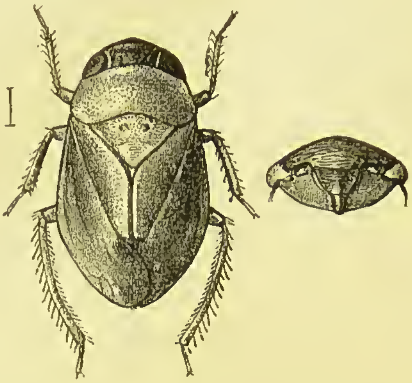

Fig. 153.—*Penthimia melanocephala.*

Length 4 millim.

Hab. Ceylon; Newera-Ellia (*fide Motschulsky*). Bhandarawella (*Mus. Hongrois*). Tenasserim; Myitta (*Doherty*).

The figure represents a specimen contained in the National Museum at Budapest.

2482. **Penthimia compacta,** *Walk. List Hom.* iii, p. 842 (1851); *Atkins. J. A. S. B.* liv, p. 113 (1885).

Head black, eyes greyish; pronotum ochraceous tinged with testaceous, the anterior margin broadly black; scutellum testaceous with a black spot at each basal angle; tegmina ochraceous with dense piceous reticulate markings, inner margin of claval area more unicolorous, apical margins hyaline, the veins ochraceous and with some scattered fuscous spots; body beneath black, abdomen paler with the segmental margins ochraceous; legs testaceous, the femora more or less black; pronotum anteriorly sparsely punctate, posteriorly smooth; scutellum finely punctate, obliquely deflexed to near apex, where there is a transverse impression; posterior tibiæ longly, strongly spinulose.

Length 6 millim.

Hab. "North India" (*Warwick, Brit. Mus.*). Punjab; Kangra Valley (*Dudgeon*). Bengal; Pusa (*Lefroy*). Bombay (*Dixon*).

Walker's description of this species is inadequate.

2483. **Penthimia castanea**, *Walk. J. Linn. Soc., Zool.* i, p. 98 (1856); *Atkins. J. A. S. B.* liv, p. 113 (1885).

Castaneous-brown; apical margin of vertex, face and head beneath, disk of sternum, coxæ, femora, posterior tibiæ, and two central elongate spots at base of abdomen beneath, black, at lateral areas of mesonotum the black markings enclose a large castaneous spot; margins of ventral segments narrowly pale ochraceous; vertex short, broadly transverse, convexly rounded in front, the posterior margin narrowly blackish; pronotum deflected anteriorly, transversely wrinkled and obscurely punctate; scutellum with five pale spots—two on each lateral margin and one at apex—the surface moderately transversely wrinkled; apical area of the tegmina pale brownish-ochraceous with the veins brown, black oblong spots in the ante-apical cells, smaller dark spots in the apical cells, beyond apex of clavus a piceous-brown spot containing three paler spots; posterior tibiæ longly, thickly spinulose.

Length 7 millim.

Hab. Tenasserim (*fide Atkinson*).—Malacca (*Wallace, Brit. Mus.*).

The above description is taken from the unique Malaccan type in the British Museum.

2484. **Penthimia subniger**, sp. n.

Castaneous above; head, anterior area of pronotum and basal angles of scutellum black; tegmina with a pale subcostal spot

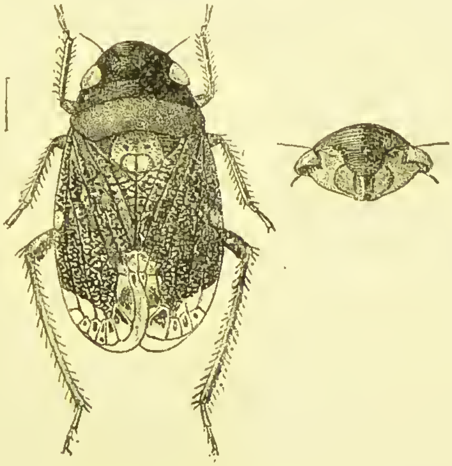

Fig. 154.—*Penthimia subniger.*

near middle, the apical area subhyaline, where the veins are ochraceous and between which are a number of piceous spots;

body beneath and legs black; tibiæ and tarsi and the segmental margins castaneous; vertex sparingly punctate, pronotum more or less punctate in its anterior black area; scutellum finely transversely striate; tegmina with tesselate darker markings; posterior tibiæ longly spinulose.

Length $5\frac{1}{2}$ millim.

Hab. Bengal; Pusa (*Lefroy*). Assam; Nilgiri Hills (*Hampson*). Calcutta, Margherita (*Ind. Mus.*).

A single specimen of this well-marked species is contained in the Nilgiri collection made by Sir G. F. Hampson, and which he presented to me some years ago; other single specimens have reached me from elsewhere (*supra*), but it seems to be nowhere abundant.

2485. **Penthimia scapularis**, sp. n.

Head, pronotum, scutellum, body beneath and legs black; a somewhat large spot near each posterior angle of pronotum, three spots in transverse series (the middle spot largest) on apical area, and the extreme apex of scutellum pale testaceous; tegmina testaceous, the veins piceous, the apical area broadly transversely subhyaline, the testaceous portion much finely reticulately spotted with piceous, less so on basal area, the reticulate spots being larger and more prominent on claval and middle costal margins, in the pale apical area there are a few small piceous-brown spots in the apical cells, the largest of these is situate in the upper cell; margins to the abdominal segments beneath and the tibial spinules pale testaceous; on each side of face at the anterior margins of the eyes there is an oblique testaceous line; tarsi castaneous-brown; vertex distinctly transversely striate on its anterior area; eyes black with their margins testaceous; pronotum subconvex, the lateral margins rather strongly oblique, distinctly foveately impressed on each side near anterior margin, anteriorly finely transversely striate; scutellum moderately discally depressed; tegmina considerably convexly widened at about middle; posterior tibiæ a little curved.

Length incl. tegm. 6 millim.

Hab. Calcutta (*Coll. Dist.*).

2486. **Penthimia maculosa**, sp. n.

Head, pronotum and scutellum dull black; extreme apex of scutellum testaceous; body beneath and legs black, margins of abdominal segments stramineous or pale testaceous; tegmina dull black, finely and thickly speckled with ochraceous or testaceous, on apical area a cluster of small white spots; vertex with transverse ridges; pronotum sparsely punctate; obscurely transversely wrinkled; scutellum transversely wrinkled, punctate on disk. A rather broad species; apical area of vertex transversely striate;

pronotum convex, deflected anteriorly, sometimes with a few small testaceous spots at middle of basal margin, and in some specimens with the extreme basal margin testaceous; scutellum moderately discally depressed before apical area which is somewhat convex and very obscurely transversely striate, the extreme apex elongately acute, sometimes with a small testaceous spot near middle of lateral margin; apices of anterior and intermediate femora and tibiæ usually testaceous; face with the basal margin broadly transversely striate, beneath which it is strongly transversely impressed; the eyes are usually greyish and when thus their outer margins as seen beneath are very conspicuous.

Length 4–5 millim.

Hab. Mussoorie (*Brunetti, Ind. Mus.*); Bombay (*Dixon*); Calcutta (*Ind. Mus.*). Assam; Margherita (*Ind. Mus.*). Tenasserim; Myitta (*Doherty*). Mergui (*Coll. Dist.*).

2487. **Penthimia juno**, sp. n.

Black; apical margins of tegmina obscurely piceous-brown; vertex finely punctate with the apex of anterior margin prominent; pronotum finely tranversely wrinkled; scutellum transversely wrinkled, obscurely punctate at base, transversely impressed at middle, a central longitudinal carinate line visible on basal half; tegmina punctate, more coarsely punctate on clavus, finely obscurely pilose; posterior tibiæ with the spinules piceous. A somewhat elongate species; the basal margin of the face strongly transversely striate, beyond which it is transversely impressed and concave; the spinules to the posterior tibiæ are long and robust; the tegmina are obliquely narrowed to apex at about two-thirds from base.

Length 4 millim.

Hab. Ceylon; Kandy (*Green*).

2488. **Penthimia erebus**, sp. n.

Black; apical margins of tegmina whitish hyaline with brown veins and brown suffusions; vertex of head with transverse ridges; pronotum punctate, obscurely transversely striate; scutellum punctate with a deep angulate transverse impression beyond middle, the apical area transversely striate, its anterior lateral margins deflected; tegmina with some very obscure and small testaceous spots beyond middle.

A smaller and more elongate species than *P. juno*, from which it also differs by the transverse ridges to the vertex and by the pale apical marginal area to the tegmina; basal margin of the face transversely striate; tegmina convexly not obliquely narrowed to apex; apices of the tarsi ochraceous; spinules to the posterior tibiæ long and robust.

Length 3 millim.

Hab. Ceylon; Habarane (*Green*).

Genus NEODARTUS.

Neodartus, *Melich. Hom. Faun. Ceylon*, p. 162 (1903).

Type, *N. acocephaloides*, Melich.
Distribution. Oriental Region.

Vertex of head long, its length about two-thirds of the breadth between eyes, obtusely broadly angulate anteriorly, its lateral and apical margins slightly reflexed; ocelli on disk much more remote from each other than from eyes; pronotum longer than vertex, lateral margins obliquely straight, posterior lateral margins strongly transversely oblique, anterior margin moderately convex, posterior margin slightly concave; scutellum broad, the basal area obliquely depressed; tegmina short, broad, widened posteriorly, clavus very broad; posterior tibiæ strongly spinose.

The typical specimen is carded which prevents a description of the face.

2489. **Neodartus acocephaloides**, *Melich. Hom. Faun. Ceylon*, p. 163 (1903).

Vertex of head, pronotum and scutellum black; tegmina black, thickly spotted with ochraceous, the apex greyish-white where the veins are fuscous and preceded by an irregular transverse series of four greyish-white spots, at about middle of tegmen there is a waved transverse series of five greyish-white spots; body beneath (imperfectly seen) black; femora black, tibiæ much paler and spotted with black; vertex with the apical margin somewhat prominently reflexed; pronotum finely transversely wrinkled; scutellum very finely transversely striate, a transverse impression before apical area; apical margins of clavus distinctly incrassate; posterior tibiæ strongly spinulose, the spinules more or less ochraceous.

Fig. 155.
Neodartus acocephaloides.

Length ♀ 4 millim.

Hab. Punjab; Hafizabad (*Ind. Mus.*). Calcutta (*Ind. Mus.*). Ceylon: Peradeniya (*fide Melichar*), Puttalam, Negombo, Anuradhapura (*Mus. Hongrois*).

I am indebted to Dr. Horváth for allowing me to see and figure a cotype of this species from Ceylon.

2490. **Neodartus scutellatus**, sp. n.

Head and pronotum black; scutellum pale, smooth, shining stramineous, four black spots at basal margin, the two central

spots incurved, apex (in type) mutilated; tegmina black, thickly spotted with ochraceous, the apical marginal area greyish-white where the veins and a few small spots are fuscous; body beneath and legs black; vertex punctate; pronotum convex, its posterior margin irregularly ochraceous; posterior tibiæ spotted with ochraceous, the spinules long.

Length 4 millim.

Hab. Ceylon; Neduukulam (*Green*). Tenasserim; Myitta (*Doherty*).

A single specimen of this species was sent to me by my ever helpful friend Mr. E. E. Green, and another was received from Mr. Doherty while in Tenasserim.

2491. **Neodartus rufopunctatus**, *Motsch.* (Penthimia) *Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 94 (1863); *Melich. Hom. Faun. Ceylon*, p. 162 (1903).

Head, pronotum and scutellum black; tegmina black, thickly covered with minute rufous spots, the apical marginal area greyish-white with fuscous veins and margin; body beneath and legs black, tibiæ spotted with ochraceous, anterior and posterior tarsi very pale ochraceous; vertex granulose, the apical margin strongly reflexed; pronotum finely transversely striate; posterior tibiæ longly spinulose, the spinules ochraceous.

Length 4 millim.

Hab. Ceylon; Puttalam (*Green*).

I have little hesitation in ascribing a single specimen described as above to Motschoulsky's species.

Genus **TAMBILA**, nov.

Type, *T. greeni*, Dist.

Distribution. Ceylon.

Vertex of head broad, somewhat long, about half as long as breadth between eyes, the apex somewhat truncate, its posterior margin concave, moderately truncate at middle; ocelli placed on disk a little before middle, nearer to lateral margins than to each other; pronotum about twice as broad as long, the lateral margins nearly obliquely straight, posterior margin moderately concave; scutellum small, triangular; head beneath broad, the face narrowed to clypeus, its lateral margins sinuate; tibiæ a little dilated, posterior tibiæ thickly longly spinulose; tegmina broad, a little widened at middle, valvate behind the clavus, apical areas four or five.

Allied to *Penthimia*, from which it principally differs by the small scutellum and the larger and differently shaped vertex.

2492. **Tambila greeni**, sp. n.

Head ochraceous, with two testaceous-brown curved fasciæ; pronotum testaceous-brown, a transverse spot at anterior margin

and a large spot on each lateral area ochraceous; scutellum ochraceous with a transverse line before apical area; tegmina pale castaneous, the costal and apical areas somewhat thickly and finely spotted with testaceous-brown, at apex these spots are

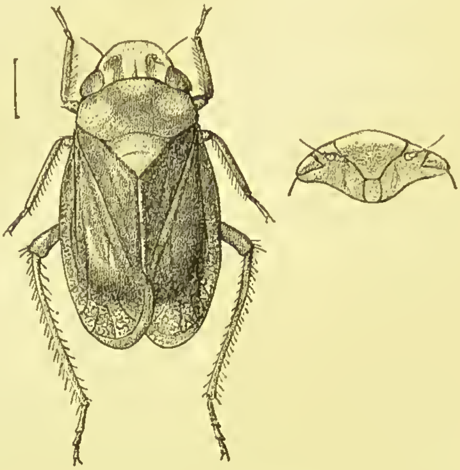

Fig. 156.—*Tambila greeni.*

paler; body beneath and legs reddish-ochraceous, a black spot on each side near anterior coxæ, margins of abdominal segments pale ochraceous; vertex and pronotum obscurely punctate, the latter a little transversely wrinkled; tegmina finely punctate.

Length 6½ millim.

Hab. Ceylon; Kandy (*Green*).

Genus **HARANGA**, nov.

Type, *H. orientalis*, Walk.

Distribution. Oriental Region.

Body ovate, somewhat strongly deflected on each side; vertex of head broadly transverse, short, anteriorly convex, margins prominent, eyes extending a little beyond anterior margin of pronotum; ocelli on disk much nearer to eyes than to each other; face short, broad, obliquely depressed beneath eyes; pronotum long, convex, narrowed anteriorly, anterior margin convex, posterior margin concave, lateral margins obliquely straight, obliquely directed inwards at posterior angles towards base of scutellum; scutellum very long, sometimes reaching apex of clavus, broad at base and somewhat suddenly narrowed from about middle to apex; tegmina valvate behind the clavus which is apically truncate; between the intermediate and posterior coxæ a moderately raised centrally sulcate process.

A. *Scutellum reaching the apex of clavus.*

2493. **Haranga orientalis,** *Walk.* (Penthimia) *List Hom.* iii, p. 841 (1851); *Atkins. J. A. S. B.* liv, p. 113 (1885).

Black; apical margins of the tegmina piceous-brown; in some specimens the anterior and intermediate tibiæ and tarsi more or less testaceous-red; posterior sternal margins testaceous; eyes ochraceous, elongate, ovate, the pronotum finely transversely

Fig. 157.—*Haranga orientalis.*

wrinkled; scutellum obliquely depressed at basal area, punctate, wrinkled, the apical area strongly longitudinally ridged; membrane somewhat thickly punctate; face strongly concavely depressed behind eyes; spinules to posterior tibiæ long and prominent.

Length 9 millim.

Hab. "North India" (*Warwick, Brit. Mus.*); Nepal, Soondrijal (*Ind. Mus.*).

B. *Scutellum not reaching the apex of clavus.*

2494. **Haranga scutellaris,** sp. n.

Above shining black; apical margin of tegmina hyaline where the veins are brownish, thus giving the appearance of a series of white cellular areas; head beneath and pro- and mesosterna black; metasterna and abdomen beneath piceous-brown; vertex and pronotum transversely wrinkled; scutellum punctate at base, transversely wrinkled on disk which is moderately globose, apical area not longitudinally ridged; tegmina thickly, somewhat strongly punctate; legs piceous; face obliquely deflexed and strongly compressed; posterior tibiæ strongly spinulose.

Length 7 millim.

Hab. Assam; Margherita (*Coll. Dist.*). Ceylon; Kandy (*Green*).

2495. **Haranga decurtata**, sp. n.

Black; eyes, lateral margins of pronotum and bases of lateral margins to tegmina more or less ochraceous; apices of tegmina hyaline, where the veins are fuscous and before which there are some indistinct ochraceous spots; head beneath black; sternum,

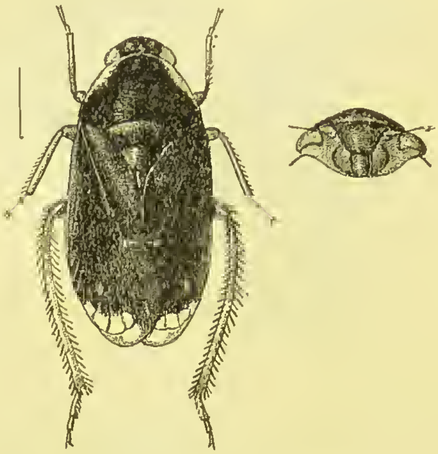

Fig. 158.—*Haranga decurtata.*

abdomen and legs brownish-ochraceous, abdomen with central transverse piceous shadings and with a narrow central longitudinal pale line; pronotum irregularly transversely wrinkled; scutellum a little globose and strongly wrinkled on basal half, apical half smooth and narrow, not reaching the apex of clavus; tegmina thickly punctate.

Length 8 millim.

Hab. Nilgiri Hills (*Hampson*).

Genus **BALALA**, nov.

Type, *B. fulviventris*, Walk.

Distribution. Oriental Region.

Vertex of head short, deflected, anteriorly rounded; ocelli on disk between the eyes much nearer to eyes than to each other; face somewhat perpendicularly deflected, moderately convex, cheeks expanded; rostrum short, just passing the anterior coxæ; pronotum about three times the length of vertex, anterior margin very slightly rounded, posterior margin strongly subangularly

excavate before the base of scutellum, lateral margins oblique; scutellum long, moderately raised, centrally strongly longitudinally ridged, gradually narrowed to apex which is acute and reaches apex of clavus; femora moderately compressed and flattened; anterior tibiæ strongly dilated; posterior femora slightly curved, strongly apically spined, posterior tibiæ more definitely curved and very strongly spinose; tegmina valvate behind clavus the apex of which is truncate, apical margin from apex to end of clavus very strongly defined with numerous short longitudinal veins, four apical areas.

2496. **Balala fulviventris**, *Walk.* (Penthimia) *List Hom.* iii, p. 841 (1851).

Piceous or brownish-piceous, the whole upper surface more or less strongly ochraceously pilose; on the pronotum longitudinally pilose; apex of scutellum black; body beneath and legs piceous

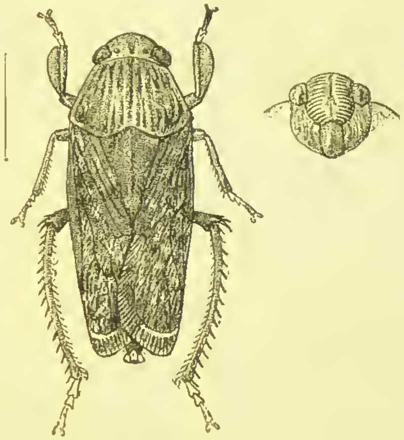

Fig. 159.—*Balala fulviventris.*

or brownish-piceous, thickly shortly ochraceously pilose; coxæ and abdomen beneath nearly wholly ochraceous; tarsi ochraceous, their apices piceous; tegmina with an apical submarginal white line: structural characters as in generic diagnosis.

Length incl. tegm. 11 to 13 millim.

Hab. Assam; Sadeya (*Ind. Mus.*). Nilgiri Hills (*Hampson*). Burma; Karen Hills (*Doherty*).—Borneo; Matang (*Hewitt*).

Walker's description is inadequate and founded on an unlocalised specimen. This specimen was also rubbed, the pale pilose covering being absent.

Division *HYLICARIA*.

Vertex not broader than long, more or less angularly produced.

Synopsis of Genera.

A. Vertex more or less subtriangularly produced, but not longer than pronotum.
  a. Abdominal segments lobately produced on each side .... HYLICA, p. 252.
  b. Abdominal segments not lobately produced.
    a. Scutellum not longer than broad.
      a'. Tegmina short, moderately broad, not longer than scutellum and abdomen together.
        a''. Vertex not concave, scutellum a little longer than pronotum .... KALASHA, p. 254.
        b''. Vertex concave, scutellum a little shorter than pronotum .... ASSIRINGIA, p. 255.
      b'. Tegmina long, narrow, as long as whole body excluding anal segment ...... BHOORIA, p. 256.
    b. Scutellum much longer than broad...... SUDRA, p. 257.
B. Vertex more or less produced, longer than pronotum.
  a. Vertex triangularly produced, suddenly narrowed, and then straightly elongately produced; apices of tegmina rounded.
    a. Vertex shorter than pronotum and scutellum together; scutellum about as long as pronotum........................ HATIGORIA, p. 258.
    b. Vertex much longer than pronotum and scutellum together; scutellum shorter than pronotum.
      a'. Ocelli on disk a little beyond base, about as far apart from eyes as from each other .... NAMSANGIA, p. 259.
      b'. Ocelli near lateral margins, a little before eyes .... VANGAMA, p. 260.
  b. Vertex triangularly produced, suddenly narrowed, and then shortly broadly produced; apices of tegmina truncate .... TRAIGUMA, p. 261.
  c. Vertex broadly subtriangular .... GURAWA, p. 262.

Genus HYLICA.

Hylica, *Stål, Tr. E. S.* 1863, p. 593; *Atkins. J. A. S. B.* liv, p. 112 (1885).

Type, *H. paradoxa*, Stål.

Distribution. British India. Java.

"Body oblong-obovate; head acutely produced; face somewhat reclined; ocelli placed on the upper part of the head near the

anterior angle of the eyes; rostrum very short; pronotum somewhat backwardly elevated, tuberculate, anterior lateral margins long, anterior middle angularly produced; scutellum elevated, tuberculate; tegmina subcoriaceous, broadly membraneously margined at the apex; abdomen broader than the tegmina, posterior segments acutely lobed and reflexed on both sides; legs somewhat short; anterior tibiæ above somewhat dilated; posterior tibiæ above spinose." (*Stål.*)

2497. **Hylica paradoxa**, *Stål, Tr. E. S.* 1863, p. 593; *Atkins. J. A. S. B.* liv, p. 112 (1885).

"Body oblong-obovate, blackish or fuscous-testaceous; face below the middle (a black spot excepted), disk or two broad stripes on the vertex sordidly stramineous; frons produced at the base in a short, compressed, slightly curved horn and furnished in the middle with two small tubercles; two posterior remote tubercles

Fig. 160.—*Hylica paradoxa.*

on the pronotum, higher than the rest and compressed; scutellum much elevated before the middle, furnished near the apex with a conical tubercle; disk of the elevated part hollowed out and more compressly elevated on both sides."

"Var. *a.* Legs sordidly stramineous, annulated with fuscous."

"Var. *b.* Legs fuscous-testaceous; femora palely banded." (*Stål.*)

Length excl. tegm. 10 to 12; exp. tegm. 17 millim.

Hab. Burma; Teinzo (*Fea*). Tenasserim; Myitta (*Doherty*).—Java (*Horsfield, Brit. Mus.*).

I have no hesitation in my identification of Stål's genus and species (*supra*). Dr. Sjöstedt kindly endeavoured to let me see a specimen, but could not find the species in the Stockholm Museum. I have therefore reproduced Stål's description and figured a specimen from Tenasserim in my own collection.

Genus KALASHA, nov.

Type, *K. nativa*, Dist.

Distribution. Assam.

Vertex of head subtriangularly produced in front of eyes; ocelli on each side a little in front of anterior margins of eyes; face reclinate, depressed on its anterior area; rostrum reaching the intermediate coxæ; pronotum long, narrowed anteriorly, laterally deflected on each side, anterior margin nearly straight, posterior margin concave before scutellum, lateral margins oblique, slightly sinuate; scutellum a little longer than pronotum, its apical area moderately gibbous; anterior legs mutilated in typical specimen, posterior tibiæ robustly spinulose; abdomen long, narrowed posteriorly, laterally deflected on each side above; tegmina with a distinct apical marginal area, apices obliquely truncate, four apical cells.

2498. **Kalasha nativa**, sp. n.

♀. Head, pronotum and scutellum piceous; lateral margins of vertex and two basal spots pale castaneous-brown; lateral areas of the pronotum broadly pale castaneous-brown and ochraceously

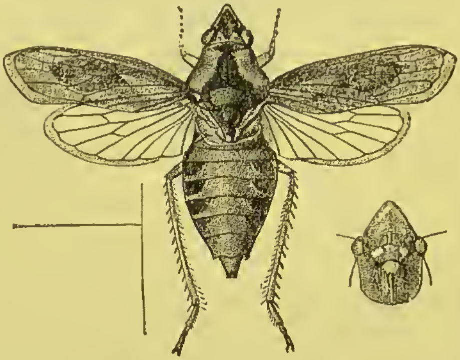

Fig. 161.—*Kalasha nativa.*

pilose; abdomen above testaceous-red, with lateral segmental piceous spots; body beneath and legs piceous; tip of face and two spots near eyes, annulations to intermediate femora, tibiæ and tarsi, and apex of rostrum, piceous; anterior legs mutilated in type; basal areas of posterior femora castaneous; tegmina brownish-ochraceous, with small piceous spots and shadings; wings pale fuliginous; pronotum finely, closely, transversely striate; scutellum globose and transversely striate before apex which is a little recurved with the tip ochraceous; body beneath somewhat longly palely pilose; posterior tibiæ with the spinules moderately long and robust.

Length excl. tegm. ♀ 17; exp. tegm. 27 millim.

Hab. Assam; Sadeya (*Coll. Dist.*).

The late Mr. Atkinson sent me a single female specimen of this species.

Genus ASSIRINGIA, nov.

Type, *A. exhibita*, Dist.

Distribution. Burma.

Vertex moderately and concavely produced in front of eyes, the margins acute and almost perpendicularly reflexed; face depressed between anterior margins of eyes; clypeus centrally longitudinally carinate; ocelli placed a little in front of anterior margins of eyes; pronotum with two transverse ridges at anterior margin, about as long as vertex, anterior margin truncate, posterior margin subtruncate, lateral areas depressed; anterior tibiæ moderately but not foveately dilated, posterior tibiæ curved and thickly spinulose; tegmina elongate, covering the lateral abdominal margins but not the anal appendage; two series of transverse veins on apical areas defining four ante-apical and four apical cells.

2499. Assiringia exhibita, sp. n.

Head, pronotum, scutellum and body beneath piceous; legs pale ochraceous, more or less annulated with brown; cheeks

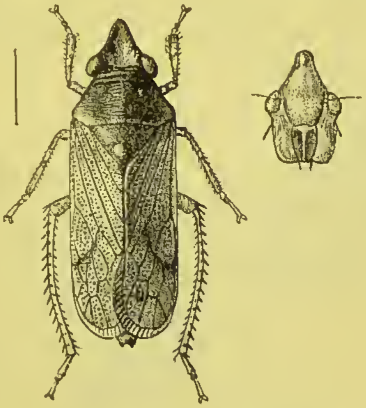

Fig. 162.—*Assiringia exhibita.*

brownish-ochraceous; tegmina umber-brown, the inner transverse veins piceous; pronotum finely transversely striate; tegmina, excepting apical area, distinctly coarsely punctate; spinules to posterior tibiæ long and almost concolorous with the tibiæ.

Length incl. tegm. 9 millim.

Hab. Burma; Ruby Mines (*Doherty*).

Genus BHOORIA, nov.

Type, *B. modulata*, Dist.

Distribution. Burma.

Vertex somewhat flat, subtriangularly produced and with a central longitudinal ridge, the lateral margins perpendicular for a little in front of eyes and then obliquely narrowing to apex which is a little prominent; ocelli placed on disk slightly in front of eyes; face flat or very slightly convex, moderately impressed across the extreme base, much longer than broad, anteriorly prominently acutely narrowed, posteriorly moderately narrowed to clypeus; pronotum scarcely longer than vertex, anterior margin a little rounded, posterior margin concavely sinuate, lateral margins a little oblique, slightly sinuate; scutellum convex at basal area, depressed and transversely impressed before apical area, apex triangularly subacute; abdomen, ♀, long and slender; legs slender, posterior tibiæ thickly finely spinulose; tegmina long and narrow, claval area large, posteriorly broadened at base, apical areas four, the uppermost longest, the lowermost long and broad; wings posteriorly broadened at anal area.

This genus has considerable affinity with the *Tettigoniellinæ*, but the structure of the face, according to my view, locates it in the *Gyponinæ*.

2500. Bhooria modulata, sp. n.

♀. Head, pronotum, scutellum, body beneath and legs ochraceous, abdomen above shining black, the extreme lateral and

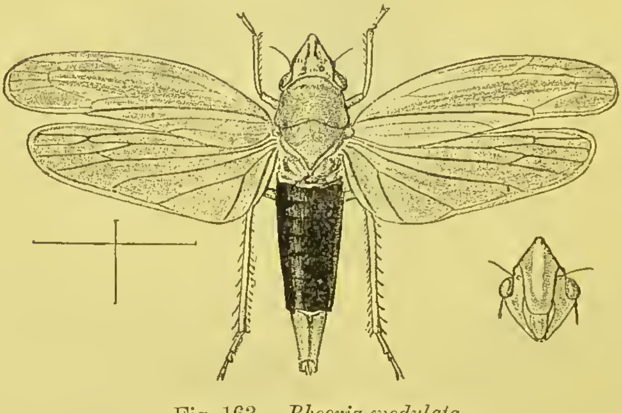

Fig. 163.—*Bhooria modulata.*

basal margins and anal segment ochraceous; vertex with the base of lateral margins and the extreme apical margin black, a sanguineous elongate spot at apex and a sanguineous lateral spot in front of each eye; tegmina pale tawny subhyaline with a broad central longitudinal streak of reddish-orange which terminates

before the apical area; wings pale fuliginous, the veins darker; pronotum finely transversely wrinkled; scutellum faintly granulose, the extreme apical margins very prominent; abdomen strongly reflexed on each side, the lateral margins laminate and projecting over the edge of the abdomen beneath.

Length excl. tegm. ♀ 10; exp. tegm. 18 millim.

Hab. Burma; Ruby Mines (*Doherty*).

Genus SUDRA, nov.

Type, *S. notanda*, Dist.

Distribution. Burma.

Head longly produced in front of eyes, narrowed anteriorly and apically reflexed; ocelli placed near the anterior margins of eyes; face elongate, laterally obliquely straight in front of eyes to near apex; pronotum centrally about as long as vertex, the lateral margins obliquely sinuate, anterior margin roundly truncate, the basal margin subangularly sinuate; scutellum elongate, much longer than either pronotum or vertex, narrowed apically, sublaterally and centrally ridged; anterior tibiæ dilated, posterior tibiæ curved and longly spinulose; tegmina elongate, not covering the whole of the lateral margins of the abdomen, valvate beyond the clavus which is broad and apically subtruncate, a broad distinct apical margin with numerous longitudinal veins.

2501. **Sudra notanda**, sp. n.

Castaneous-brown, more or less palely pilose (in fresh specimens probably thickly longly pilose); apex of vertex above and beneath

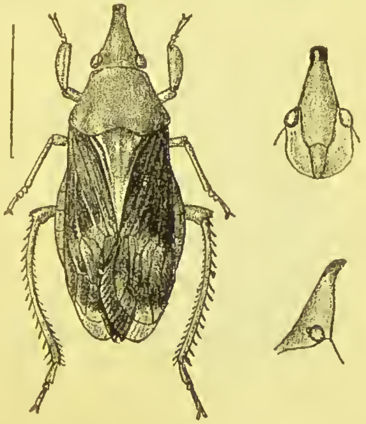

Fig. 164.—*Sudra notanda.*

black; scutellum beyond middle centrally longitudinally ochraceous, the apex black; tegmina a little darker in hue, distinctly thickly palely pilose beyond middle, with fainter traces of the pilosity on basal area, upper apical margins pale subhyaline; body

beneath more thickly and more palely pilose; the spinules to the posterior tibiæ black; apex of vertex distinctly reflexed; pronotum thickly finely wrinkled; scutellum strongly centrally longitudinally ridged from beyond middle to apex, sublaterally strongly ridged from base to beyond middle.

Length incl. tegm. ♀ 15 millim.

Hab. Burma; Karen Hills (*Doherty*).

Genus HATIGORIA, nov.

Type, *H. præiens*, Dist.

Distribution. Burma.

Head longly produced in front of eyes, narrowed and recurved for about half its length; ocelli placed near the anterior margin of eyes; face somewhat broad, anteriorly subtriangular; pronotum somewhat depressed on anterior area, truncate at anterior margin, subangularly sinuate at posterior margin, the lateral margins obliquely sinuate; scutellum subtriangular, about as long as pronotum, its apex narrowed; anterior tibiæ moderately but not foveately dilated, posterior tibiæ slightly curved, the spinules long; tegmina elongate, not covering the whole of the lateral abdominal margins, valvate behind clavus which is broad and apically subtruncate, a somewhat broad apical margin with numerous longitudinal veins.

Allied to *Sudra* but differing by the short scutellum, different shape of head and face, not foveately dilated anterior tibiæ, &c.

2502. **Hatigoria præiens**, sp. n.

Tawny-brown, more or less palely pilose; narrow apical half of

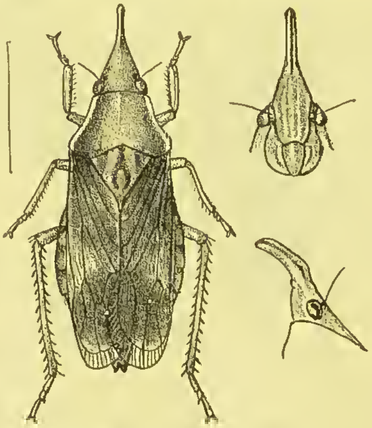

Fig. 165.—*Hatigoria præiens.*

produced vertex piceous with a central ochraceous line; lateral margins of pronotum stramineous and within these margins a broad obscure piceous fascia; scutellum with a large piceous spot near each basal angle and a central dark fascia which is forked

posteriorly, the extreme apex whitish; body beneath and legs thickly ochraceously pilose, a large central piceous spot at base of abdomen; spinules to posterior tibiæ brownish-ochraceous; tegmina darker brown with the apical area still darker, the apical margins brownish-ochraceous.

Length incl. tegm. ♀ 16 millim.

Hab. Burma; Karen Hills (*Doherty*).

Genus **NAMSANGIA**, nov.

Type, *N. garialis*, Dist.

Distribution. Assam.

Head with the cephalic process very longly produced, which with the vertex is about as long as the posterior tibiæ, its upper surface concave, the apex a little ampliated and spatulate and distinctly recurved; face long and broad, moderately convex; ocelli on disk, a little beyond base, about as far apart from eyes as from each other; pronotum considerably longer than scutellum, deflected on each side, broader than long, anterior margin centrally truncate, posterior margin subangularly sinuate, lateral margins oblique and slightly sinuate; scutellum subtriangular; anterior legs mutilated in typical specimen; posterior tibiæ thickly and finely spinulose; tegmina long and narrow, four apical cells, the innermost very long commencing near end of clavus.

2503. **Namsangia garialis**, sp. n.

Black; basal lateral areas of vertex (somewhat interrupted),

Fig. 166.—*Namsangia garialis.*

reticulate markings to anterior lateral areas of pronotum, body beneath and legs more or less reddish-ochraceous; anterior area of cephalic process beneath black, centrally longitudinally reddish; cephalic process above concave, its margins acute and upwardly

directed; vertex with two central carinations; pronotum thickly, finely, transversely wrinkled; scutellum convex at base, transversely impressed before apical area; tegmina obscurely thickly finely punctate.

Length incl. tegm. 19 millim.

Hab. Assam; Margherita (*Doherty*).

Genus VANGAMA, nov.

Type, *V. steneosaura*, Dist.

Distribution. North-West India.

Head with the cephalic process longly produced, which with the vertex is about as long as the posterior tibiæ, its upper surface continued to base of vertex and its anterior surface beneath centrally longitudinally ridged, its apical area strongly upwardly recurved; face long and broad, moderately convex; ocelli at

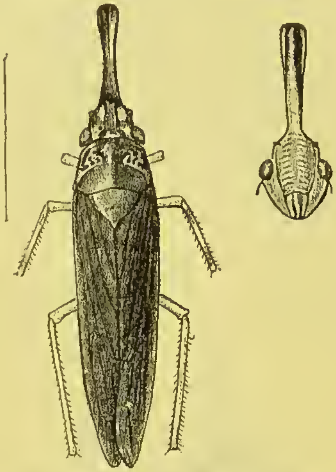

Fig. 167.—*Vangama steneosaura.*

lateral margins of vertex a little before eyes; pronotum a little longer than scutellum, broader than long, centrally longitudinally ridged, its lateral areas deflected, its anterior margin rounded, lateral margins oblique, slightly sinuate, posterior margin subangulately sinuate; scutellum subtriangular; anterior tibiæ not dilated*, posterior tibiæ finely spinulose; tegmina long and narrow, clavus long and broad, apical areas four.

Allied to *Namsangia*, but differing by the longitudinally ridged vertex and cephalic process, the different position of the ocelli, longer clavus, &c.

2504. **Vangama steneosaura**, sp. n.

Black; margins of central ridges to cephalic process both above and beneath, a small spot near end of clavus and the legs,

* In the specimen figured the anterior tibiæ were mutilated.

stramineous; apices of posterior tibiæ and bases of posterior tarsi piceous; cephalic process above and vertex strongly centrally longitudinally ridged; pronotum closely finely transversely wrinkled and centrally longitudinally ridged; scutellum punctate; tegmina thickly finely punctate.

Length incl. tegm. 11 millim.

Hab. North-West Provinces; Kumaon, Bhim Tal (*Annandale, Ind. Mus.*).

Genus TRAIGUMA, nov.

Type, *T. nasuta*, Dist.

Distribution. Southern India.

Vertex longly produced in front of eyes, triangularly narrowed to about one-third before apex and then somewhat spatulately longitudinally produced, tuberculate above; ocelli situate near anterior margins of eyes; face narrowed from eyes to tip which on each side is narrowly foliaceous; pronotum discally concavely depressed, anterior margin truncate, posterior margin concavely sinuate, lateral margins oblique; scutellum subtriangular; tegmina shorter than abdomen, their apices truncate, surface sparingly granulose, apical cells four; anterior tibiæ moderately dilated, posterior tibiæ finely spinulose.

2505. **Traiguma nasuta**, sp. n.

Head, pronotum, scutellum, sternum, legs and abdomen beneath, griseous; metasternum more or less piceous; abdomen above pale brownish-ochraceous, the lateral and apical areas broadly

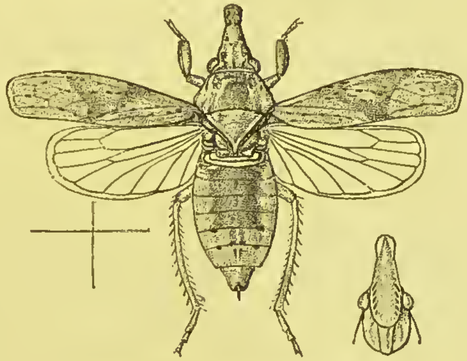

Fig. 168.—*Traiguma nasuta.*

griseous; face behind eyes with lateral oblique dark striæ; tegmina griseous with darker granules and shadings; wings very pale fuliginous, hyaline, the veins darker; vertex with four anterior discal tubercles arranged in pairs; the whole surface somewhat thickly palely ochraceously pilose; pronotum with

some small obscure tubercles on anterior disk; head beneath and sternum very thickly finely pilose.

Length excl. tegm ♂ & ♀ $10\frac{1}{2}$ to 12; exp. tegm. 14 millim.

Hab. Nilgiri Hills (*Hampson*); Utakamand (*Coll. Dist.*).

Genus **GURAWA**, nov.

Type, *G. vexillum*, Dist.

Distribution. Sikhim.

Body short and broad; vertex broad, subtriangular, flat, a little depressed at basal area, lateral margins oblique and almost in a line with the outer margins of the eyes; ocelli situate near base, nearer to eyes than to each other, eyes projecting behind beyond the anterior angles of the pronotum; face long, narrow, flattened, transversely impressed beneath base, narrower at apex than at base, more than twice as long as clypeus; pronotum transverse,

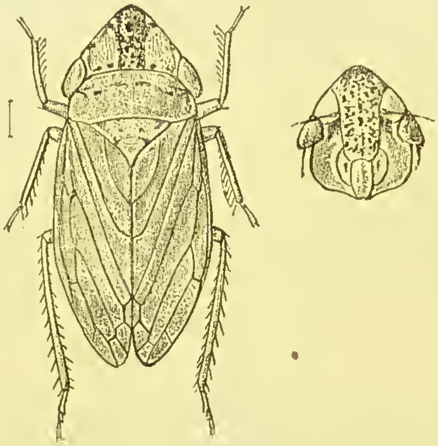

Fig. 169.—*Gurawa vexillum.*

shorter than vertex, centrally finely carinate, all the margins nearly straight, more than twice as broad as long; scutellum centrally depressed, transversely impressed before apical area, its apex acute; legs of moderate length, the posterior tibiæ thickly finely spinulose; tegmina broad, passing the abdominal apex, apical areas short, three in number, clavus of moderate size, claval vein curved.

This genus has a considerable resemblance to *Eupelix*, placed by writers (Puton, Melichar, Edwards) in the *Acocephalinæ*. The ocelli are often difficult to distinguish, but their position near the base of the vertex in *Gurawa* is a distinct feature, and in this determination I was confirmed by the hymenopterists Col. Bingham and Mr. Turner, and by Edwd. Waterhouse, the coleopterist.

2506. **Gurawa vexillum**, sp. n.

Dull ochraceous; vertex with a broad longitudinal fuscous fascia containing darker dots, two fuscous spots on lateral margin, one in front of eyes, the other nearer apex, ocelli fuscous; pronotum with indistinct longitudinal shadings, a central pale carinate line, and with a series of transverse linear dark spots before anterior margin; scutellum with a piceous spot near each basal angle; mesosternum with piceous markings (indistinctly seen on carded type); pronotum somewhat strongly transversely wrinkled; face with minute black spots, the basal margin black and a black spot before each eye; tegmina smooth with the veins prominent.

Length incl. tegm. ♂ 4 millim.

Hab. Sikhim; Mungphu (*Atkinson, Coll. Dist.*).

I only possess a single carded specimen of this species.

Genus PYTHAMUS.

Pythamus, *Melich. Hom. Faun. Ceylon,* p. 161 (1903).

Type, *P. dealbatus*, Melich.

Distribution. Ceylon.

"Body very long; vertex triangularly produced, the sides of the anterior margin convex and carinate, with a leaf-like projecting middle carination; face long and narrow, centrally carinate, the carina at the tip below the front somewhat leaf-like and raised, at the sides of the face distinct transverse furrows which extend to fine ridges running below the margin of the face to its tip and form with the facial border an acute triangle in which close below the vertical margin lie the ocelli; clypeus somewhat long, triangular, with central longitudinal carinæ, truncated above and below; eyes sessile; antennæ long; pronotum one-third shorter than the vertex, before and behind almost straight, the sides rounded; scutellum triangular; tegmina long, narrow, with three very tender veins, in the apical area three terminal veins; membrane apparently wanting; legs slender." (*Melichar.*)

Melichar has included this genus in the *Tettigoniellinæ*. I have not seen a specimen, but am doubtful, according to my views, whether it should be placed in that subfamily.

2507. **Pythamus dealbatus**, *Melich. Hom. Faun. Ceylon,* p. 161, t. v, f. 6*a* (1903).

"Body above black, strongly shining; vertex between the eyes coarsely transversely wrinkled, in the middle of the central carination a rounded spot and in the nape a triangular longitudinal spot pale yellowish; antennæ rusty yellow; face black, rostrum yolk-yellow; pronotum and scutellum coarsely transversely

wrinkled, black; tip of scutellum yellow; tegmina black, strongly shining, the apex smoky-brown, base of costal margin narrowly bordered with yellow, the border widened hindward conically to the membrane, the terminal marginal nervure pale yellow, before tip of clavus an indistinct pale spot and behind tip of clavus

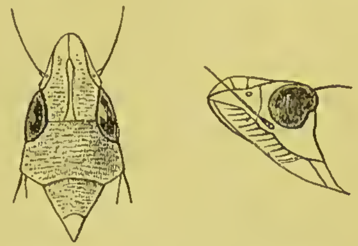

Fig. 170.—*Pythamus dealbatus.*

a small white hyaline dot; wings brown with piceous nervures; pectus black; coxæ and legs yolk-yellow; abdomen black above and yolk-yellow beneath." (*Melichar.*)

"Length ♂ 6 millim.

"*Hab.* Ceylon (*Berlin Mus.*)."

I have not seen this species. The figure is after Melichar.

2508. **Gypona? kangrensis,** *Kirk.* (Gypona) *Wien. ent. Zeit.* xxiv, p. 26 (1905).

"Head and pronotum pale yellow, unspotted; scutellum dark reddish-brown, with paler reddish-brown markings; tegmina opaque, more or less shining, whitish, the veins brownish, the cells with small crowded punctiform spots, a larger brownish spot in the clavus and corium in the middle, the terminal cells with pale and dark brown markings; wings hyaline, rainbow-coloured; abdomen above blackish, the lateral borders broadly pale, apical borders broadly pale reddish-brown; beneath indistinctly brownish; rostrum pale reddish-brown; femora pale reddish-brown, the other parts of the legs pale blackish-brown, granulated; vertex short, longitudinally furrowed, a little broader than the pronotum, in front obtusely angulated (somewhat roundish); ocelli below the middle line of the vertex, further from each other than from eyes; clypeus not arched; pronotum smooth with no transverse impression, broadly rounded in front, about a fourth part longer than the vertex; tegmina not punctured, extended beyond end of abdomen.

"Length incl. tegm. 3·5 millim." (*Kirkaldy.*)

Hab. Punjab; Kangra Valley (*Dudgeon, fide Kirkaldy*).

I do not know this species, and it may probably be not truly congeneric with *Gypona.*

Subfamily V. JASSINÆ (including Acocephalinæ).

Jassides, *Amy. & Serv. Hém.* p. 581 (1843).
Jassina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 735; *Van Duzée, Tr. Am. Ent. Soc.* xix, p. 297 (1892).
Jassaria, *Oshan. Verz. Pal. Hemipt.* Bd. ii, *Homopt.* p. 101 (1906).
Jassinæ, *Dist. ante*, p. 158.
Acocephalidæ, *Dohrn, Cat. Hem.* p. 84 (1859); *Edw. Tr. Ent. Soc.* 1886, p. 45.
Acocephalides, *Sahlb. Not. Faun. Flor. Fenn. Förh.* (2) ix, pp. 72 & 352 (1871); *Sign. Ann. Soc. Ent. Fr.* 1879, p. 47.
Acocephalini, *Puton, Cat. Hem. Pal.* p. 79 (1886); *Melich. Hom. Faun. Ceylon*, p. 163 (1903).
Acocephalina, *Atkins. J. A. S. B.* liv, p. 102 (1885); *Van Duzée, Tr. Am. Ent. Soc.* xix, p. 297 (1892).
Acocephalaria, *Oshan. Verz. Pal. Hemipt.* Bd. ii, *Homopt.* p. 84 (1906).
Acocephalinæ, *Dist. ante*, p. 158.

In my synopsis of the subfamilies of the Jassidæ (*ante*, p. 158) I proposed to keep the Acocephalinæ and Jassinæ distinct from one another, as is done by most systematists. When, however, I had been some time working at the genera included in these divisions, I found myself in too many instances unable to decide with certitude whether they belonged to one or the other. I was not alone in this dilemma as is shown by the different conclusions of those whose views can be accepted as belonging to competent homopterists. Thus *Xestocephalus*, placed by its founder, Van Duzée, in the Acocephalinæ, is by Melichar and Matsumura located in the Jassinæ; *Hecalus* included by Stål, its founder, in the Acocephalinæ *, a view accepted by Melichar and Oshanin, is considered by Van Duzée as a member of the Jassinæ. *Platymetopius* is located by Puton and Oshanin in the Jassinæ, by Edwards and Buckton in the Acocephalinæ. *Paramesus* according to the views of Puton, Buckton, and Oshanin belongs to the Acocephalinæ, by Van Duzée it is regarded as a component of the Jassinæ. Many other instances could doubtless be recorded, but the above will suffice to show that though in some cases there is no difficulty, in others it is impossible at present to find an exact line of demarcation between the Acocephalinæ and Jassinæ.

We recall the words of the late Prof. Newton with respect to the various proposed ornithological systems. "It is impossible with our present knowledge to thread the maze in which the taxonomer now finds himself." We must, however, remember that

* Stål first described its species in the genus *Acocephalus*.

the classification of the Jassinæ is still a matter of expert opinion and the last word has not yet been said on the subject. In this publication the system adopted is uot regarded as of the first importauce, so long as it enables those for whom the book is written to readily recognize the genera and species described or enumerated.

As regards the geueric descriptions I have in many, if not in most, cases reproduced the diagnosis of the founders of these genera, and although many new ones have had to be proposed it is probable that strictly following the method pursued more generic subdivision is necessary. There are, however, so many described species which I have not seeu, that such a course becomes impossible.

I have to acknowledge with gratitude the great help I have received from Mr. E. P. Van Duzée of Buffalo, N.Y., who has seut me many Nearctic specimens identified by himself, and as the genera of Jassinæ are widely distributed the assistance thus rendered has been considerable. Dr. Horváth of Budapest has again kindly let me see such of Melichar's types or cotypes as are contained in the Museum Hongrois. Walker's types in the British Museum have been at my disposal and also the large collections made for me by the late Mr. Doherty in Iudia, Burma, and Tenasserim. I have also seen the specimens belonging to the Indian Museum at Calcutta, frequently supplemented by others collected by its enthusiastic superintendent, Dr. Annandale. From Mr. Maxwell Lefroy I have received much material from Pusa. Finally the immense assistance already reudered by Mr. E. E. Green of Ceylon has been supplemented by his particular effort to procure me Jassid representatives from that island.

Genus unknown to the writer, but doubtfully belonging to the Jassinæ as located by its describer.

Genus **UZELINA**.

Uzelina, *Melich. Hom. Faun. Ceylon,* p. 181 (1903).

Type, *U. laticeps*, Melich.

Distribution. Ceylon.

"Vertex as broad as pronotum, in front broadly rounded, above arched, the surface curved downward with two ocelli on the disk; face broad, directed downward, almost concave; pronotum in front broadly rounded, behind straight; scutellum half as long as pronotum with an impressed line in the middle; tegmina somewhat passing abdominal apex, rounded behind, the outer sector forked, the inner forked branch counected with second sector by a transverse vein, both in middle and apical areas a row of transverse veins, membranal appendage narrow; legs simple. The broad downwardly curved head, which looks as if it was excavate on lower side, is a characteristic feature." (*Melichar.*)

I have no personal knowledge of this genus, but the position of the ocelli as described by Melichar scarcely allows its inclusion in the Jassinæ as generally understood.

2509. **Uzelina laticeps**, *Melich. Hom. Faun. Ceylon*, p. 182, t. v f. 2, *a*, *b* (1903).

"Vertex, pronotum and scutellum yellowish or yellowish-white delicately sprinkled with brown or black streaked, with two reddish dots on the vertex between the eyes; pronotum with a greyish-white transverse band, the posterior border greyish-white; tegmina brownish, the veins black, delicate, with numerous spots, dashes and atoms between the veins which are locally coalesced into larger spots, such a spot is found in the middle of clavus, at hinder end of which two rounded hyaline dots are prominent, a

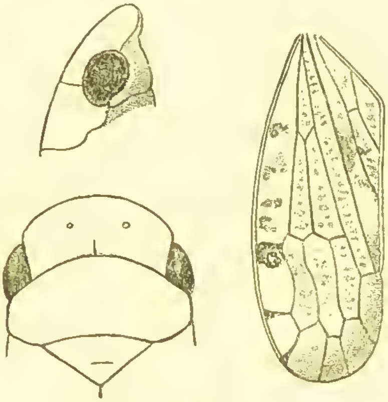

Fig. 171.—*Uzelina laticeps.*

more indistinct hyaline dot is commonly before the black spot, a nearly quadrangular black spot behind the middle of the costal margin, before this an indistinct transverse hyaline band, behind it the outer border as well as the tips of the anteapical cells hyaline, the outer two transverse veins at tip triangularly margined with brownish, a brown spot in each of the terminal cells; wings fuliginous; face and lower side and the legs deep black; knees, tibiæ and tarsi of anterior and intermediate legs rusty-brown, tibiæ dotted with black, posterior tibiæ black, spines rusty-yellow, bases of the joints of the tarsi and the claws rusty-yellow." (*Melichar.*)

Length ♂ & ♀ 7 millim.

Hab. Ceylon; Bundarawella (*fide Melichar*).

I do not at present propose a division for the reception of the following genus:—

Genus CHUDANIA, nov.

Type, *C. delecta*, Dist.

Distribution. Northern India.

Vertex moderately broad and long, anteriorly subangularly produced, about as long as breadth between eyes, the lateral margins acutely reflexed, obliquely incurved in front of eyes; ocelli near the lateral margins in front of eyes, which are oblong and projecting behind the anterior margin of the pronotum; face broad, narrowed posteriorly, somewhat globose, centrally carinate on basal area; pronotum about as long as vertex, slightly convex at anterior margin, a little concavely sinuate at posterior margin, lateral margins nearly straight; scutellum shorter than pronotum, transversely impressed before apical area; tegmina broad, passing apex of abdomen, costal margin rounded, apical cells four; legs somewhat short and slender, posterior tibiæ thickly finely spinulose.

The surface position of the ocelli would seem to locate this genus in the Tettigoniellinæ, but their position near the lateral edges and its general affinities have induced me to include it in the Acocephalinous portion of the Jassinæ. I am, however, in some doubt as to its correct location, and for present purposes, and in the present diverse opinions as to the characters of some subfamilies, it may be thus enumerated.

2510. **Chudania delecta**, sp. n.

Vertex, pronotum and scutellum black; lateral margins of

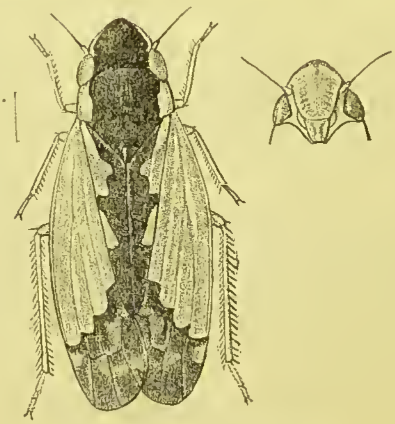

Fig. 172.—*Chudania delecta.*

vertex, eyes, ocelli and broad lateral margins to pronotum stramineous; apex of scutellum castaneous; head beneath, sternum and legs very pale ochraceous, basal margin of face narrowly

black; abdomen beneath testaceous; tegmina stramineous, basal margin of clavus broadly and angularly continued along claval suture and occupying the whole of claval apex dark castaneous, the whole apical area to tegmen pale castaneous, darker anteriorly and posteriorly and centrally spotted with dark castaneons, its anterior margin much angulated, at inner base of clavus there is an oblique very pale stramineous spot; vertex, pronotum and scutellum very thickly finely punctate; face with a short central basal ridge and finely laterally transversely striate; margins of the vertex acutely reflexed.

Length incl. tegm. ♀ 6 millim.

Hab. Kurseong (*Coll. Dist.*).

I possess at present only a single female specimen of this species.

Division *MUKARIANA*.

This division here includes three somewhat aberrant genera, which by the structure of the face, strongly transversely impressed across the base beneath the prominent overhanging anterior edge of the head, has strong affinites with the Gyponinæ. From this subfamily it is, however, differentiated by the indiscernible ocelli, and I therefore place it in the Jassinæ.

Synopsis of Genera.

A. Scutellum broad, its basal margin longer than either of the lateral margins.
- a. Vertex as long as or only a little shorter than pronotum, subconically rounded in front, more than half as long as breadth between eyes .... MUKARIA, p. 269.
- b. Vertex short and transverse, convexly rounded in front, in length not more than half the breadth between eyes .... BULORIA, p. 271.

B. Scutellum triangular........................ MOHUNIA, p 272.

Genus MUKARIA, nov.

Type, *M. penthimioides*, Dist.

Distribution. India, Ceylon.

Vertex as long as or a little shorter than pronotum, subconically anteriorly rounded, more than half as long as breadth between eyes, a submarginal impressed line from between eyes; ocelli indiscernible; face long, strongly transversely impressed across the base beneath the prominent overhanging anterior edge of the head, narrowed towards clypeus; eyes long, oblique, extending backward over the anterior angles of the pronotum; pronotum arched, anterior margin convexly rounded between the eyes, a little concave before scutellum, the lateral margins short; scutellum large, broad, its basal margin longer than either of the lateral margins, transversely impressed before apical area; tegmina elongate, considerably longer than abdomen, widened posteriorly, apical areas large; tibiæ spinulose.

2511. **Mukaria penthimioides**, sp. n.

Black, shining; eyes piceous; tegmina with the apical cellular areas pale fuscous, a linear spot near middle of costal margin, and an oblique transverse costal spot before apical area, white; body beneath black, legs greyish-white, posterior legs more or less

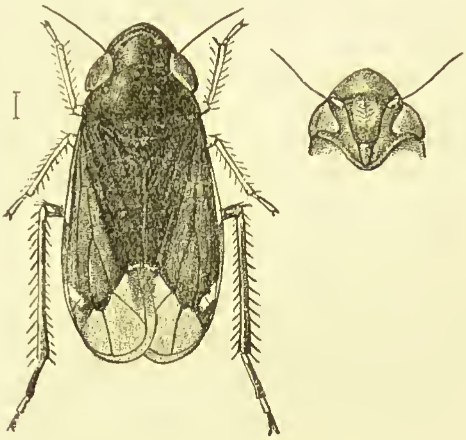

Fig. 173.—*Mukaria penthimioides.*

piceous, the posterior tarsi with the base and the whole of the second joint very pale stramineous; anterior margin of vertex exhibiting a distinct marginal ridge between the submarginal impressed line and vertex; pronotum very faintly transversely striate; scutellum finely transversely striate, somewhat faintly and irregularly longitudinally impressed, with two small tuberculous callosities before apex and a fine transverse impression before apical area; face centrally paler and transversely striate; inner margins of eyes brownish-ochraceous; tibiæ thickly finely spinulose.

Length 4 millim.

Hab. Ceylon; Maskeliya (*Green*).

2512. **Mukaria splendida**, sp. n.

Body shining black; legs dull ochraceous; tegmina shining black, claval area (excluding base), a large costal spot beyond middle, and a small costal spot before apex, stramineous, apical area hyaline, more or less marginally fuscous; wings hyaline, the veins fuscous; posterior margin of the last abdominal segment ochraceous; vertex about as long as pronotum, anterior margin rounded with a submarginal impressed line from between eyes; eyes brownish, their margins paler; face strongly transversely impressed across the base beneath the prominent overhanging anterior edge of the head, the disk ochraceous.

Length 4 millim.

Hab. Bengal; Pusa (*Lefroy*).

A single example of this distinct species was sent to me by Mr. Maxwell Lefroy.

Genus BULORIA, nov.

Type, *B. gyponinoides*, Dist.

Distribution. Bengal.

Allied to the preceding genus *Mukaria*, but differing by the shorter and more transverse vertex which is only in length about half the breadth between eyes, the anterior margin convexly not subconically rounded; face shorter and broader; other characters as in *Mukaria.*

2513. Buloria gyponinoides, sp. n.

Black, shining, eyes piceous; tegmina with a linear spot at middle of costal margin, a transverse costal spot beyond middle and the apical area white, the inner apical cell pale fuscous, the apical margin fuscous outwardly black; body beneath black, legs very pale stramineous, posterior legs more or less piceous with the apices of the femora and bases of the tibiæ pale stramineous,

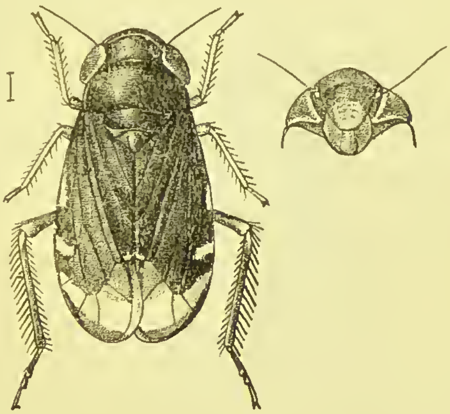

Fig. 174.—*Buloria gyponinoides.*

posterior tarsi black, their bases narrowly stramineous; anterior margin of vertex slightly ridged in front of the submarginal transverse impression; apical area of face and the margins of eyes dull ochraceous; scutellum strongly transversely impressed before apical area; tibiæ longly spinulose.

Length $3\frac{1}{2}$ millim.

Hab. Calcutta.

Genus MOHUNIA, nov.

Type, *M. splendens*, Dist.
Distribution. Tenasserim.

Vertex large, broadly subconically produced, about as long as breadth between eyes; ocelli imperceptible; face narrowed towards clypeus, impressed across the base beneath the somewhat prominent and overhanging anterior edge of the head; eyes large and oblique; pronotum longer than vertex, the posterior margin concave before scutellum, a little transversely convex between eyes, lateral areas deflected; scutellum triangular; tegmina considerably longer than abdomen, three apical areas, transversely veined a short distance from base; posterior tibiæ longly spinulose.

The impressed face near base gives this genus a resemblance in that respect to the structure of the Gyponinæ.

2514. Mohunia splendens, sp. n.

Very pale ochraceous; vertex with two longitudinal sanguineous fasciæ, nearer eyes than to each other; pronotum with the basal

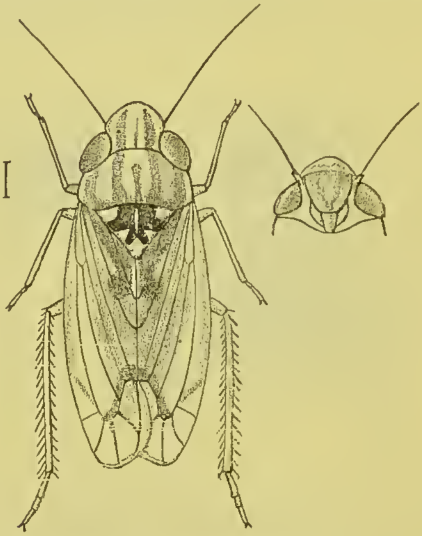

Fig. 175.—*Mohunia splendens.*

margin and four longitudinal fasciæ crossing disk and between the two central fasciæ a shorter one not reaching anterior margin, sanguineous; scutellum black, with two spots on each lateral margin, one at apex, and a central line greyish-white; clavus with a broad curved fascia which occupies its inner basal margin

and is outwardly curved before its middle, and a waved oblique line from claval apex to bases of apical areas, sanguineous; body beneath and legs very pale ochraceous; structural characters as in generic diagnosis.

Length 4 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Division *HECALUSARIA*.

Body depressed; vertex more or less flatly produced; ocelli placed on the apical margin of the head or near the eyes.

Synopsis of Genera.

A. Vertex not prominently angulate in front of eyes.
- a. Tegmina with five apical cells .... HECALUS, p. 273.
- b. Tegmina with about six posterior discoidal areolets or cells .... THOMSONIELLA, p. 277.
- c. Tegmina with four apical cells.
  - *a.* Lateral margins of face convex.
    - *a'.* Vertex twice or nearly twice as long as pronotum; face about three times longer than clypeus .. NIRVANA, p. 281.
    - *b'.* Vertex about one-third longer than pronotum; face about twice as long as clypeus .... KANA, p. 285.
  - *b.* Lateral margins of face sinuate near insertion of antennæ .... PLATYRETUS, p. 289.

B. Vertex strongly obliquely angulate in front of eyes .... BALBILLUS, p. 287.

Genus **HECALUS.**

Hecalus, *Stål, Ann. Soc. Ent. Fr.* 1864, p. 65; *id. Hem. Afr.* iv, p. 113 (1866); *Sign. Ann. Soc. Ent. Fr.* 1879, p. 266; *Atkins. J. A. S. B.* liv, p. 102 (1885).

Glossocratus, *Fieb. Verh. z.-b. Ges. Wien*, xvi, 1866, t. vii, f. 12; *id. Rev. Mag. Zool.* (3) ii, p. 403 (1875).

Type, *H. paykulli*, Stål.

Distribution. Nearctic, Oriental, Australasian and Ethiopian Regions, in all probability more widely distributed.

"Body oblong or elongate, depressed; head somewhat largely or somewhat so, produced, apical margin acute, more or less broadly foliaceous; front dilated, somewhat deeply sinuate below the eyes;

face a little convex; eyes small or moderate; ocelli placed on the apical margin of the head at or near the eyes; pronotum transverse, very obtusely rounded at the apex; scutellum triangular, a little broader than long; tegmina almost as long as the abdomen, margined at the apex, valvate behind the clavus, with five apical cells; legs moderate; posterior tibiæ very spinose." (*Stål.*)

Melichar located this genus in his Acocephalinæ, by the presence and position of the ocelli. Van Duzée places it at the commencement of the Jassinæ in his tribe *Dorydini.*

A. *Vertex as long as or longer than pronotum.*

a. *Pronotum longitudinally sulcated.*

2515. **Hecalus sulcatus**, *Fieb.* (Glossocratus) *Verh. z.-b. Ges. Wien,* xvi, p. 513, t. vii, f. 13 (1866); *Sign.* (Hecalus), *Ann. Soc. Ent. Fr.* 1879, p. 272, t. viii, f. 28; *Atkins. J. A. S. B.* liv, p. 103 (1885).

"Sordid yellow; vertex parallel, parabolic in front, angles very obtusely rounded; pronotum with four elongated cavities in front, finely transversely striated behind; tegmina transparent, as long as the abdomen, veins strong, yellowish, not margined, a blackish dot at the point of the clavus; abdomen above with two bands of small brown patches, two at the base of each segment; legs entirely sordid yellow, unicolorous; ventral segments parallel, median lobe obtusely salient, sides sinuated." (*Fieber.*)

"Length ♀ 11 millim."

Hab. "East India."

The strongly sulcated pronotum should render this species (which I have not seen) easily recognizable.

b. *Pronotum not sulcated.*

2516. **Hecalus umballaensis**, sp. n.

Pale stramineous with a slight greenish tint; vertex and pronotum with pale fuscous longitudinal lines, six on the first, eight on the latter; scutellum with four longitudinal lines not extending beyond the transverse impression; tegmina with the veins very pale fuscous, a small black spot at apex of clavus; body beneath and legs stramineous with a slight ochraceous tint; abdomen with the lateral segmental margins castaneous brown; vertex with the apical margin moderately reflexed; the veins of the tegmina very robust; face with a series of small dark spots on

its anterior margin ; anal segment in ♀ extending beyond apices of tegmina.

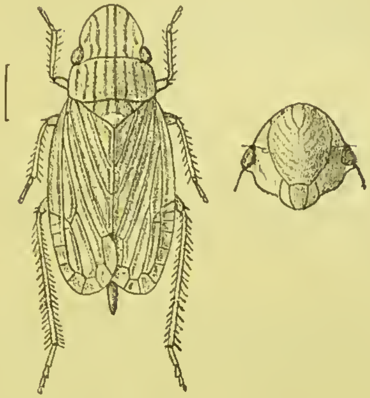

Fig. 176.—*Hecalus umballaensis.*

Length incl. anal segment ♀ $6\frac{1}{2}$ millim.
Hab. Umballa (*Ind. Mus.*).

2517. **Hecalus lefroyi**, sp. n.

Pale virescent, in some specimens inclining to a pale greenish-yellow ; coxæ, bases of femora and metasternum, sometimes the whole body beneath and legs, pale ochraceous ; tegmina with a

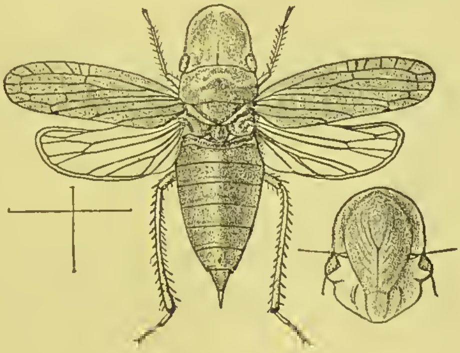

Fig. 177.—*Hecalus lefroyi.*

small black spot at end of clavus ; vertex with an obtuse, arcuate darker fascia, commencing near anterior margin of eyes and continued to near anterior margin ; vertex of head about as long

as pronotum and scutellum together, somewhat broadly rounded anteriorly; pronotum rugosely wrinkled on anterior area, finely closely transversely striate on posterior area; face broad, moderately globose, obliquely striate on its lateral areas; posterior tibiæ long, spinulose.

Length excl. tegm. ♀ 10, exp. tegm. 14 millim.

Hab. Bengal; Pusa, Purulia (*Lefroy*).

2518. **Hecalus paykulli**, *Stål* (Petalocephala), *Öfv. Vet.-Ak. Förh.* p. 252 (1854); *id.* (Hecalus) *Ann. Soc. Ent. Fr.* 1864, p. 65; *Sign. tom. cit.* 1879, p. 270, t. vii, f. 26; *Atkins. J. A. S. B.* liv, p. 103 (1885); *Melich.* (Parabolocratus) *Wien ent. Zeit.* xxiv, p. 300 (1905).

"Sordid whitish-yellow, smooth, shining, clouded with brown on the vertex, the length of the median line, and transversely on the pronotum, the tegmina and the veins of the same colour but with a brown line on each side; head defined on the margin only, one and a half times longer than the pronotum, as long as breadth between the eyes, angularly rounded, the sides almost parallel above the eyes, then forming an angle at the tip, two excavations on the vertex on each side; face convex with a foliaceous border anteriorly, grooved on the sides, border concave above the clypeus which is broader at the base than at the apex but showing its greater breadth in the middle, carinate medially; rostrum very short; genæ with the tip oblique from the clypeus to the eye forming a very acute angle, concave, sinuous towards the clypeus and then emarginate, concave near the eye; pronotum a little more than twice as broad as long, finely transversely striated on the posterior half and with several less marked impressions anteriorly; tegmina opaque with four discoidal areas of which two are anteapical, five apical areas and three in the marginal space, a black dot at the tip of the claval angle; tegmina hyaline with the third sector reunited at the internal branch of the bifurcation of the second sector, then bifurcate and forming a long angular cell; pectus and abdomen yellow, the latter a little deeper towards the base of the dorsal segments; the ♂ has the last segment of the abdomen hardly longer than the preceding, apical margin straight, a very small genital appendage; genital plates very narrow at the tip, almost as long as the hypopygium and pubescent on the sides, the hypopygium a little broader and pubescent, the anal tube surrounded by it and very little extending beyond it; the ♀ has the last segment twice as long as the preceding, convex at the superior margin, angular in the middle and weakly sinuated on each side, the genital appendages or valvules are more than twice as long as the preceding and the oviduct extends beyond them by about one-third." (*Signoret.*)

Length, ♂ 5; ♀ 6 millim. (*Signoret*).

Hab. Sylhet; Decca-Day (*fide Signoret*). East Africa (*fide Melichar*).

Signoret (*supra*) inclined to the opinion that the *Ledra parva*, Walk. described from Hong Kong was a synonym of this species. Walker's species belongs to the genus *Ledrotypa*, Dist. (Ledrinæ), and is to be recognized by the presence of four dark granulose spots on the scutellum.

In his habitats Signoret writes :—"Decca-Day—Coll. Dist.", and "Sylhet—Brit. Mus.," but at present the species cannot be found in either of these collections.

B. *Vertex shorter than pronotum.*

2519. **Hecalus? nervosus**, *Melich. Hom. Faun. Ceylon*, p. 173 (1903).

"Yellowish-brown; vertex shorter than posteriorly broad between the eyes, in front leaf-like, compressed, strongly obtusely angular, rounded off at tip, anterior margin acute, slightly raised, a short deepened middle line in nape, two brownish spots near posterior margin, and two brownish comma-shaped spots between the eyes; face as long as broad, a strong black transverse fascia below the margin of the vertex, and two series of narrow transverse lines shortened below; pronotum as long as vertex in middle, behind finely transversely stippled, with six brown longitudinal streaks truncated in front, each of the middle and lateral ones approximate, lateral margins yellowish-white, near front margin numerous brown spots and dots; scutellum broadly triangular with two short longitudinal streaks at base and between these a line running to the apex, crossing the transverse line, and on both sides of it a small oblique dash before the transverse line; tegmina brownish-yellow, costal margin yellowish-white, veins strongly thickened and bordered with brownish; wings fuliginous; body beneath and legs yellowish-brown." (*Melichar.*)

"Length ♀ 8 millim."

Hab. Ceylon (*fide Melichar*).

A single specimen agreeing generally with the above description was sent to me from Ceylon (without precise locality) by my very helpful friend Mr. Green. It is to be distinguished from the other species here enumerated by the shorter vertex.

Genus THOMSONIELLA.

Thomsonia, *Sign. Ann. Soc. Ent. Fr.* 1879, p. 51 *.
Thomsoniella, *Sign. Ann. Soc. Ent. Fr.* 1880, p. 52; *Atkins. J. A. S. B.* liv, p. 104 (1885); *Melich. Hom. Faun. Ceylon*, p. 171 (1903).

Type, *T. porrecta*, Walk.

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* Signoret recognizing that his name *Thomsonia* was not sufficiently distinct from *Thompsonia*, previously used in Crustacea, rightly substituted *Thomsoniella* for it.

Distribution. From the Oriental Region to North Australia, probably found in the Ethiopian Region.

Separated from *Hecalus*, Stål, by the presence of six discoidal areolas. Body depressed ; head prolonged in front, foliaceous on the anterior margin of the vertex, with a groove throughout its entire length, vertex depressed, also the frons, the latter with the grooves and lateral sutures extending to the anterior border of the head : genæ sinuated, rounded in the middle, the lores occupying the entire space between the margin of the genæ and the frontal suture ; sides of clypeus almost parallel, rounded at the tip, one and a half times longer than broad ; pronotum transverse, almost broader than the head including the eyes ; tegmina transparent hyaline with a narrow marginal limbus ; other characters as in *Hecalus*. (*Signoret*.)

2520. **Thomsoniella porrecta**, *Walk.* (Acocephalus) *List Hom. Suppl.* p. 262 (1858) ; *Melich.* (Thomsoniella) part., *Hom. Faun. Ceylon*, p. 173 (1903).

Platymetopius liueolatus, *Motsch. Étud. Ent.* viii, p. 114 (1859) ; *Kirk.* (Thomsonia) *Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 337 (1906).

Hecalus kirschbaumii, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 737 ; *Sign.* (Thomsoniella) *Ann. Soc. Ent. Fr.* 1880, p. 52, t. i, f. 44 ; *Atkins. J. A. S. B.* liv, p. 104 (1885) ; *Kirk.* (Thomsonia) *Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 338 (1906).

Pale ochraceous or greenish-ochraceous, with a small spot at the

Fig. 178.—*Thomsoniella porrecta.*

apex of clavus and another on the middle of the first apical area,

black; anterior margin of vertex usually blackish; some obscure longitudinal orange-red fasciæ which are sometimes obsolete, in other specimens visible as in the one here figured, these fasciæ number when fully discernible four on vertex, six on pronotum, and three on scutellum; vertex considerably shorter than breadth between eyes, its anterior margin distinctly reflexed, ocelli in groove very close to the eyes.

Length incl. tegm. 4½ to 6 millim.

Hab. Calcutta (*Ind. Mus.*); Pusa (*Lefroy*). Ceylon; Peradeniya (*Green*), Newara Eliya (*fide Motschoulsky*); Puttalam, Negombo, Bandarawella (*fide Melichar*). Burma; N. Shan Hills (*Brown*). Maldive Islds.; Minikoi (*Gardner*).—Philippines. Queensland; Cairns (*fide Kirkaldy*).

I have here figured Walker's type of *T. porrecta* contained in the British Museum. The species is of a variable nature caused by the frequent difficulty in discerning any trace of the longitudinal orange-red fasciæ.

2521. **Thomsoniella rubrolineata**, *Motsch.* (Deltocephalus) *Bull. Soc. Nat. Mosc.* xxxvi (3) p. 98 (1863).

Thomsoniella porrecta (part.), *Melich. Hom. Faun. Ceylon*, p. 173 (1903).

"Elongate, medially a little arcuately dilated, posteriorly truncate, shining, above somewhat bluish-green, longitudinally striped with red, margins flavous, body beneath and legs piceous, abdominal segments margined with white; apex of tegmina infuscated; head triangular, with two red lines, medially longitudinally impressed, vertically subconcave, apex subreflexed, at margin four minute black punctures; front anteriorly subfuscous, with five minute white punctures (1, 3, 1), medially one rufously arcuate; eyes granulose, elongate-subconical, scarcely convex, posteriorly not prominent, cinereous, posteriorly red; pronotum with six lines, slightly broader than head, strongly transverse, posteriorly convexly sinuate, posterior angles rounded; lateral margins indistinctly punctate; mesonotum trapezoidal, with two lines, medially finely bi-impressed, posteriorly arcuate; scutellum triangular, apex moderately red; tegmina elongately-subovate, medially a little broader than pronotum, obliquely striped with red and also with four spots at apex, the stripes posteriorly abbreviated, medially somewhat longer, the three posterior spots short, the anterior line strongly elongate, situate between the third and second stripes." (*Motschoulsky.*)

"Length 2⅓ l.; lat. elytr. med. ⅘ l."

Hab. Ceylon; Mont. Patannas (*fide Motschoulsky*).

I have not seen this species.

2522. **Thomsoniella arcuata**, *Motsch.* (Acocephalus) *Étud. Ent.* viii, p. 15 (1859); *id. Bull. Soc. Nat. Mosc.* xxxvi (3) p. 100 (1863); *Melich.* (Thomsoniella) *Hom. Faun. Ceylon*, p. 172 (1903); *Kirk.* (Thomsonia) *Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 337 (1906).
Tetigonia kalidasa, *Kirk. Entomologist*, xxxiii, p. 294 (1900).

Pale ochraceous or greenish-ochraceous; an arcuated fascia on vertex commencing near eyes, two arcuated fasciæ to pronotum, the posterior one much the smallest, three longitudinal fasciæ to scutellum, and longitudinal fasciæ to tegmina orange-red or sanguineous.

Closely allied to *T. porrecta*, Walk., and differing principally, or more apparently, by the arcuated and not straight red fasciæ to the vertex and pronotum, and by the distinct (at least in all the specimens I have examined) longitudinal red fasciæ to the tegmina.

Length incl. tegm. 4½ to 6 millim.

Hab. Ceylon; Pundaluoya (*Green*), Newara Eliya (*fide Motschoulsky*), Peradeniya, Henaratgoda (*fide Melichar*). Maldive Islds.; Minikoi (*Gardiner*).—Queensland; Cairns, Kuranda (*fide Kirkaldy*).

2523. **Thomsoniella viridis**, sp. n.

Dark green, the veins of the tegmina very distinct and darker in hue; the tarsi and the apical areas of the tibiæ pale tawny-ochraceous; apical margin of vertex strongly reflexed; pronotum (excluding anterior area) distinctly transversely striate; scutellum with faint longitudinal lines; apical margin of tegmina pale tawny-grey traversed by the darker veins; wings hyaline with an iridescent tint; spinules to the posterior tibiæ ochraceous.

Length incl. tegm. 6 millim.

Hab. East Bengal, Rajshai (*Ind. Mus.*). Calcutta.

2524. **Thomsoniella albomaculata**, sp. n.

Pale ochraceous or greenish-ochraceous; apical areas of tegmina brownish with white spots; vertex of head with the lateral and apical margins somewhat strongly reflexed, extreme apical edge piceous; pronotum finely transversely striate; scutellum with an angulate line before the apical area; in some specimens as the one here figured there are two darker basal spots, but generally these are obsolete; abdomen above black, the lateral margins somewhat broadly ochraceous and inwardly angulated, a subapical narrow greyish transverse fascia, the anal segment castaneous.

Length excl. tegm. $4\frac{1}{2}$; exp. tegm. 8 to 9 millim.

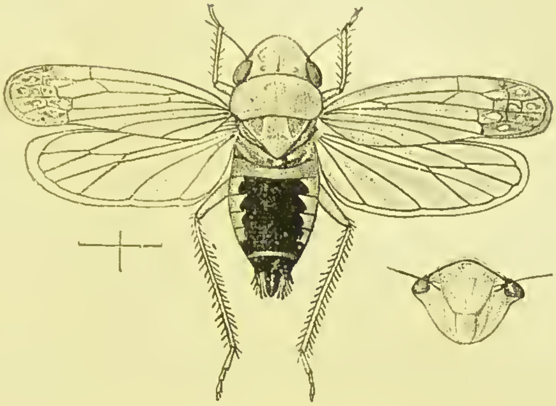

Fig. 179.—*Thomsoniella albomaculata.*

Hab. E. Bengal; Pusa (*Lefroy*). Calcutta (*Ind. Mus.*). Ceylon; Puudaluoya (*Green*).

Geuus NIRVANA.

Nirvana, *Kirk. Entomologist*, xxxiii, p. 293 (1900); *Melich. Hom. Faun. Ceylon*, p. 165 (1903).

Type, *N. pseudommatos*, Kirk.

Distribution. British India.

" Head porrect, plane, nearly twice as long as pronotum; the lateral margins parallel so far as ocelli, subsequently very gently convergent, apex subangular; eyes longer than wide, produced basally over the anterior margin of the pronotum, which is somewhat wider than the base of the vertex; ocelli small, iudistinct, situated on the lateral margins of the vertex, at about half their length from the base; posterior margin of head concave; frons slightly concave; antennæ simple, very long; scutellum slightly shorter than pronotum; anterior coxæ free." (*Kirkaldy.*)

In the above generic indication Kirkaldy has made no mention of the tegmina which have three or four apical cells bounded by three longitudinal veins. Melichar has described the genus more fully, but his artist in figuring two species (Hom. Faun. Ceylon, t. v, figs. 4 & 5) has omitted the spinules to the posterior tibiæ, which might lead to the supposition that they belonged to another family. Sometimes the veins are very delicate and indistinct as shown in the figure of *N. linealis* (p. 282).

Kirkaldy originally placed this genus in the Acocephalous Jassinæ. He has since suggested it may belong to the Typhlocybinæ.

2525. **Nirvana pseudommatos,** *Kirk. Entomologist*, xxxiii, p. 293 (1900); *Melich. Hom. Faun. Ceylon*, p. 165 (1903).

"Hyaline, eyes yellowish-brown, pronotum and scutellum tinged with stramineous; in the middle line of the vertex, close to the anterior margin, is a large round blackish-brown spot, from which proceeds a thin median line of the same colour, terminating at the base ("apex" auctt.) of scutellum; along the lateral margins of the head (except apically) is a line of the same colour, continued (in the same straight line) on the pronotum; tegmina hyaline, sparingly punctured, the punctures scantily piliferous; membrane pale salmon-coloured, a large round submedian spot and the apical margin blackish-brown; three faint fasciæ on the corium of the same colour; ventral surface whitish, apex of posterior tibiæ and first segment of posterior tarsi blackish." (*Kirkaldy.*)

Length $4\frac{1}{2}$ millim.

Hab. Ceylon; Pundaluoya (*Green, fide Kirkaldy*).

I have not seen this species, nor apparently has Melichar. Kirkaldy stated that a coloured representation would appear in another place, but this promise has apparently not been fulfilled.

2526. **Nirvana linealis,** sp. n.

Pale ochraceous-yellow; vertex with the lateral marginal areas

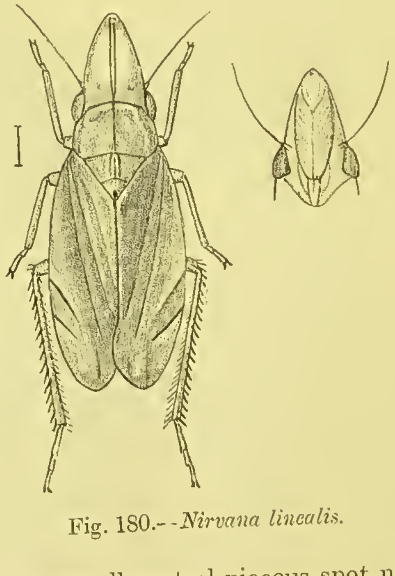

Fig. 180.—*Nirvana linealis.*

darker ochraceous, a small central piceous spot near apex and two central longitudinal piceous lines which are united at basal margin;

pronotum with the lateral margins darker ochraceous and with a central piceous line; scutellum transversely impressed before apical area, the impression preceded by three central dark longitudinal lines of which the two lateral ones are anteriorly united, apex black; body beneath and legs uniformly pale ochraceous; tegmina with the longitudinal veins very slender and indistinct, two oblique dark lines beyond middle, commencing on costal margin and directed inwardly about half across tegmen, enclosing a darker ochraceous spot, the dark lines margined on their outer sides with greyish-white; vertex about twice as long as pronotum, the ocelli placed near lateral edges a little before eyes; face elongate, obliquely transversely striate on each lateral area, an ovally defined space at base; tegmina with the venation somewhat indistinctly defined.

Length incl. tegm. 5 millim.

Hab. Calcutta (*Coll. Dist.*).

I possess a single female specimen of this species.

2527. **Nirvana greeni**, sp. n.

Pale stramineous; vertex with a small central black spot near apex and two central longitudinal black lines united on basal margin; pronotum with a central black longitudinal line which is continued for about two-thirds the length of scutellum the apex of which is also black; tegmina with the claval sutural margin for about three-fourths its length from base black, this black line then obliquely crossing clavus before its apex, a small piceous spot at apex of clavus and another in a small testaceous suffusion near apex, apical margin narrowly testaceous, two dark converging lines crossing costal area beyond middle and enclosing a greyish space; body beneath and legs uniformly pale stramineous; tarsal claws black; ocelli testaceous.

Length incl. tegm. 5 millim.

Hab. Ceylon; Peradeniya (*Green*).

This species is allied to the preceding *N. linealis*, from which it can be at once separated by its paler and more uniform coloration, the black claval sutural margin, &c. Mr. Green sent me a single example.

2528. **Nirvana longitudinalis**, sp. n.

Vertex stramineous with a somewhat large black spot before apex and two central blaek longitudinal lines united at basal margin; pronotum and scutellum very pale ochraceous, both traversed by a central longitudinal black line; head beneath and legs stramineous; sternum and abdomen very pale ochraceous; tegmina hyaline, the inner and claval areas pale roseate or sometimes ochraceous, a small piceous spot at apex of clavus and a larger rounded black spot near apex of tegmen, two marginal fuscous transverse lines near apical area of which the uppermost

is oblique, followed by a minute fuscous spot on costal margin; vertex not quite twice as long as pronotum, the ocelli near lateral edges a little in front of eyes; face elongate, obliquely transversely striate on each lateral area; scutellum shortly transversely impressed before apical area; tegmina with the veins more clearly defined than in the preceding species.

Length incl. tegm. 4½ millim.

Hab. Tenasserim; Myitta (*Doherty*).

2529. **Nirvana suturalis,** *Melich. Hom. Faun. Ceylon,* p. 166, t. v, f. 5 (1903).

Very pale stramineous; a central black longitudinal fascia traversing the vertex, pronotum and scutellum and continued along the tegminal suture where it is outwardly notched and the colour more piceous-brown; a faint, transverse, angulate subapical dark line to tegmina followed by a small black spot in inner apical area, the inner apical margin from apex of clavus and an oblique transverse line near apex ochraceous; vertex longer than pronotum, considerably narrowed to apex; posterior tibiæ longly spinulose.

Length incl. tegm. 6 millim.

Hab. Ceylon; Maskeliya (*Green*). Burma; Ruby Mines (*Doherty*).

Mr. E. E. Green has enriched my collection with a single specimen of this rare species from Ceylon and Mr. Doherty sent me another example from Burma. Melichar described it from a single Ceylonese specimen in the Berlin Museum.

2530. **Nirvana pallida,** *Melich. Hom. Faun. Ceylon,* p. 166, t. v, f. 3 *a–e* (1903); *Matsum. Trans. Sapporo Nat. Hist. Soc.* i, p. 21 (1905).

"Pale yellowish-white, shining; in the middle of the vertex a pale white line running from the base to the tip of the front and becoming indistinct, almost produced to the hind border of the pronotum; on the lateral borders of the vertex with the exception of its tip an orange-yellow longitudinal streak on each side; eyes brownish-yellow; face and antennæ pale yellowish-white, on the front indistinct transverse lines; pronotum with an impressed, curved, oblique line near the front margin; scutellum at middle of base as far as depressed transverse line whitish; tegmina transparent hyaline, veins not visible, only distinct in apical part where there are three terminal cells with a little brownish dot in the middle one, on the costal margin beyond middle two brownish marginal stripes of which the front one runs obliquely backward, and the hinder one is almost transverse; outside of apical margin faintly tinged with brownish; wings hyaline with tender white

veins; pectus, abdomen and legs pale yellowish-white, the back sometimes tinged with orange-yellow." (*Melichar.*)

Length ♂ 4½, ♀ 5½ millim.

Hab. Calcutta. Ceylon; Peradeniya (*fide Melichar*), Diyáwa (*Fletcher*). Tenasserim; Myitta (*Doherty*). — Japan (*fide Matsumura*).

2531. **Nirvana decora,** *Melich. Hom. Faun. Ceylon,* p. 166, t. v, f. 4 (1903).

"Similar to *N. pallida*, pale yellowish, with a clear yellowish longitudinal stripe on each lateral side of the vertex; eyes brown; tegmina hyaline, the three longitudinal veins distinct, delicate; in the corium two oblique bright yellow narrow transverse bands, the first close to the base, the second extending in the middle as far as the claval suture, from there along the suture turning upwards and then obliquely across the clavus to the terminal margin, colouring it yellow to the base; above the series of transverse veins runs an oblique brownish transverse stripe; wings hyaline with whitish veins; underside and legs pale yellowish-white." (*Melichar.*)

Length ♀ 5½ millim.

Hab. Ceylon (*fide Melichar*).

Genus **KANA**, nov.

Type, *K. thoracica*, Dist.

Distribution. British India.

Vertex about one-third longer than pronotum, subangularly rounded anteriorly, moderately flattened, ocelli placed at a short distance from lateral edges a little in front of eyes; face only a little longer than broad, truncate before clypeus which is moderately broad and long; pronotum convexly rounded anteriorly, the lateral posterior margins more or less obliquely directed to base; scutellum broad, subtriangular; tegmina with four distinct apical cells.

This genus is allied to *Nirvana* by the position of the apical cells to the tegmina, &c., but it differs in the much shorter vertex and face.

2532. **Kana thoracica,** sp. n.

Head, pronotum and scutellum very pale greyish-brown; vertex with a sublateral orange-yellow fascia on each side; pronotum with two central longitudinal orange-yellow fasciæ; body beneath and legs pale yellowish-grey; tegmina pale shining greyish; basal claval margin continued for a short distance along claval suture,

thence obliquely directed to upper claval margin and continued obliquely and transversely to costal margin and a short transverse stripe near base, orange-yellow, a transverse series of pale fuscous

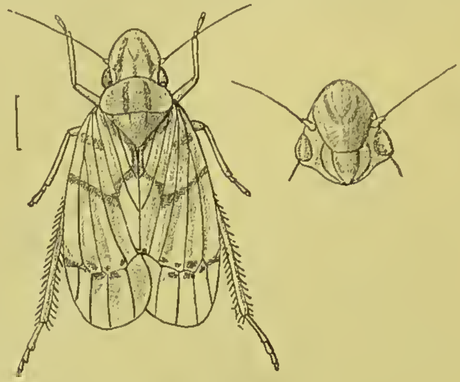

Fig. 181.—*Kana thoracica.*

spots before the apical cells; vertex somewhat longly produced anteriorly, nearly one and a half times as long as pronotum.

Length 6 millim.

Hab. Ceylon; Pundaluoya (*Green*, *Brit. Mus.*).

2533. **Kana ramificata**, sp. n.

Head, pronotum and scutellum greyish-white; sublateral margins to vertex and an anterior arcuate fascia to pronotum golden-yellow; scutellum golden-yellow; tegmina stramineous,

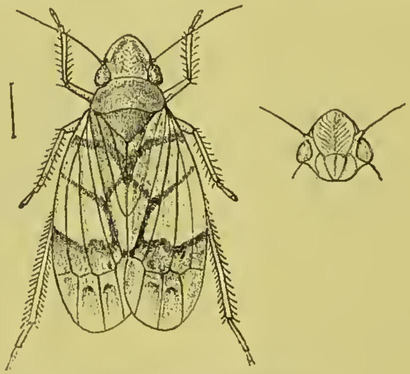

Fig. 182.—*Kana ramificata.*

the apical third more or less suffused with pale reddish and containing some pale fuscous spots; three transverse orange-yellow fasciæ, the first near base, the second oblique, near middle, and the third nearer apical cells, all angularly connected on clavus;

head beneath, sternum and legs pale stramineous; abdomen beneath orange-yellow; vertex broad, much narrowed anteriorly.

Length $5\frac{1}{2}$ millim.

Hab. Ceylon (*Green*, *Brit. Mus.*).

2534. **Kana ordinata**, sp. n.

Vertex of head, pronotum and scutellum greyish-white; pronotum with four longitudinal fasciæ and the base golden-yellow, the former consisting of two central fasciæ and one at each lateral margin; scutellum with a transverse series of golden-yellow spots at base; tegmina pale shining stramineous, the basal and apical areas whitish subhyaline, a transverse sanguineous fascia near base at the termination of the basal white area, and an obtuse transverse fuscous tessellate fascia at middle of stramineous area; wings pale hyaline; body beneath and legs very pale ochraceous; vertex concavely depressed, very little or scarcely longer than pronotum; posterior tibiæ thickly spinulose.

Length excl. tegm. 3; exp. tegm. 9 millim.

Hab. Ceylon; Bogawantalawa, Maskeliya (*Green*).

2535. **Kana illaborata**, sp. n.

Pale yellowish; vertex with a pale central whitish longitudinal linear fascia a little widened at middle; pronotum with a central longitudinal line, and a subquadrate spot on each side near anterior margin whitish; tegmina with a broad transverse fascia before middle and the apical area pale fuscous; body beneath and legs a little paler in hue; vertex a little longer than pronotum, foveately depressed, anteriorly subangularly narrowed; posterior tibiæ finely spinulose.

Length incl. tegm. 6 millim.

Hab. Tenasserim; Myitta (*Doherty*).

The late Mr. Doherty sent me a small series of this distinct species.

Genus **BALBILLUS**, nov.

Type, *B. granulosus*, Dist.

Distribution. Ceylon.

Vertex as long as breadth between eyes, anteriorly angularly rounded, shortly obliquely perpendicularly produced before eyes, the lateral margins thence obliquely a little roundly narrowing to apex; eyes of moderate size, obliquely directed backward over the anterior angles of the pronotum, ocelli difficult to determine but apparently situate on the anterior margin near eyes; face about twice as long as clypeus, anteriorly angularly produced in front of the insertion of the antennæ, behind which it obliquely narrows to clypeus; pronotum about as long as vertex, deflected on each side

at lateral areas, the anterior margin subtruncate, the posterior margin a little sinuate, lateral margins slightly rounded ; scutellum broadly subtriangular ; tegmina considerably longer than abdomen, broad, ampliate, their apices rounded, the lateral margins moderately convex, five apical cells, a very distinct anteapical cell near inner margin ; legs moderately slender, the posterior tibiæ strongly spinulose.

2536. **Balbillus granulosus**, sp. n.

Vertex greyish-ochraceous, with three prominent black marginal spots, one at apex and one on each side between eyes and apex; pronotum ochraceous, with darker macular suffusions, a short central black longitudinal line extending about one-third from anterior margin; scutellum ochraceous with a large black spot near each basal angle and a blackish central longitudinal line imperfectly seen in the strongly-pinned typical specimen; face with an anterior

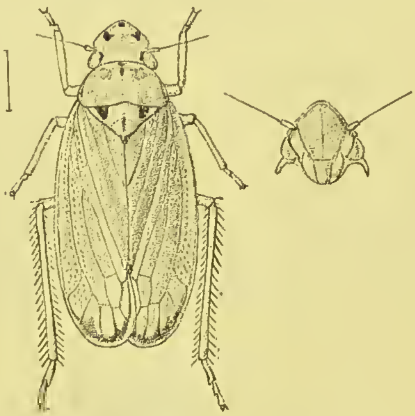

Fig. 183.—*Balbillus granulosus.*

submarginal dark line and an obscure darker central longitudinal line; body beneath and legs ochraceous ; tegmina ochraceous, the costal and apical areas pale greyish, the subapical margin fuscous ; the costal area as far as apical area thickly finely granulose, a minute black spot at apex of clavus ; wings dark fuliginous.

Length 7 millim.

Hab. Ceylon (*Green*).

Mr. Green sent me a single example of this species.

Genus PLATYRETUS.

Platyretus, *Melich. Hom. Faun. Ceylon*, p. 174 (1903).

Type, *P. marginatus*, Melich.

Distribution. Oriental, Australasian and Ethiopian Regions.

Vertex somewhat short, broad and spatulate, lateral margins almost in a line with the outer margins of the eyes, conically rounded in front, ocelli placed near the apical margin of the head, a narrow central longitudinal carinate line, the disk depressed a little beyond base; face attenuated, cheeks broad; pronotum longer than the vertex, convex, depressed on each side, the anterior margin transverse and produced to between the eyes, centrally longitudinally carinate, the posterior margin slightly concavely sinuate; scutellum large, broad, about as long as the pronotum, subtriangular, transversely impressed before apical area and with a central carinate line; tegmina very much longer than abdomen, the costal margin a little arched to beyond middle, then slightly obliquely narrowed inwardly to apex, apical cells four, two transverse veins on costal area before apex; legs somewhat slender, all the tibiæ finely spinulose.

2537. **Platyretus marginatus,** *Melich. Hom. Faun. Ceylon*, p. 174 (1903).

Above chocolate-brown, beneath with legs stramineous; vertex with three greyish spots on anterior margin, the central spot smallest, three greyish spots on basal margin, the central one

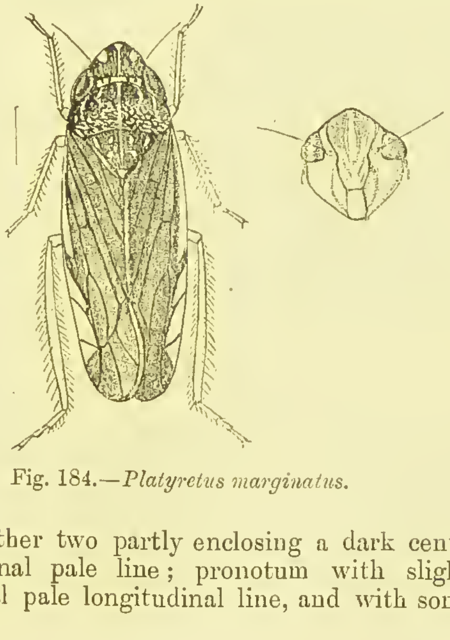

Fig. 184.—*Platyretus marginatus.*

transverse, the other two partly enclosing a dark centre, and a central longitudinal pale line; pronotum with slightly paler wrinkles, a central pale longitudinal line, and with some obscure

paler spots on anterior area; scutellum with four small spots on each side, a central longitudinal line and the apex greyish; tegmina with the costal area greyish for about half its length, before apex it is hyaline and crossed by two transverse brown veins; pronotum wrinkled and obscurely punctate; scutellum transversely impressed before apical area which is transversely wrinkled, the apex smooth; face centrally smooth, obscurely striate on each lateral area.

Length incl. tegm. ♂ and ♀ 6 to 7 millim.

Hab. Bengal; Palamau (*Lefroy*); Calcutta (*Ind. Mus.*). Ceylon Peradeniya, Kala Oya (*Green*), Henaratgoda (*fide Melichar*). Tenasserim; Myitta (*Doherty*).

Division *SELENOCEPHALARIA.*

Vertex about half as long as breadth between eyes, more or less rounded anteriorly; ocelli on or near the anterior margin of the vertex, and at or near the eyes.

Synopsis of Genera.

A. Vertex with the apical margin transversely sulcated .... SELENOCEPHALUS, p. 290.

B. Vertex not apically transversely sulcated, the apical margin more or less reflexed and ridged.

- a. Veins of tegmina very distinct and brownly margined, the cellular areas very pronounced .... PARAMESUS, p. 293.
- b. Veins of tegmina normal.
  - *a.* Face not anteriorly ridged.
    - *a'*. Claval veins not connected.
      - *a*². Apical areas of tegmina reticulately veined .... KRISNA, p. 297.
      - *b*². Apical areas of tegmina not reticulately veined.......... CENEDÆUS, p. 296.
    - *b'*. Two transverse veins on basal area of tegmina, one in and the other outside claval area .... MEGABYZUS, p. 294.
  - *b.* Face with an anterior submarginal transverse ridge; claval veins connected by a transverse vein ...... ACROPONA, p. 300.

Genus SELENOCEPHALUS.

Selenocephalus, *Germ. in Silb. Rev. Ent.* i, p. 180 (1833); *Stål, Hem. Afric.* iv, p. 108 (1866); *Fieb. Rev. Mag. Zool.* (3) iii, p. 399 (1875); *Atkins. J. A. S. B.* liv, p. 105 (1885); *Melich. Hom. Faun. Ceylon*, p. 169 (1903).

Type, *S. obsoletus*, Germ., a Palæarctic species.

Distribution. Palæarctic, Ethiopian and Oriental Regions; probably more widely distributed

"Body oblong; head short, broadly rounded at the apex, apical margin sulcated; vertex flat, horizontal; face dilated, depressed at base, lateral margins beneath the eyes slightly sinuate; ocelli situate in the sulcation at the apical margin of the head at or near the eyes; pronotum transverse, anteriorly rounded; scutellum a little broader then long, triangular; tegmina extending beyond the abdomiual apex, membranaceous, apically margined, valvate behind clavus, apical cells four or five; legs moderate, posterior tibiæ a little compressed, densely spinulose." (*Stål.*)

2538. **Selenocephalus egregius**, *Stål, Ann. Soc. Ent. Fr.* 1864, p. 66; *Sign. tom. cit.* 1880, p. 62, t. ii, f. 52; *Atkins. J. A. S. B.* liv, p. 105 (1885).

"Light olive-green, smooth, head with vermillion-red spots, pronotum and scutellum glossy. Vertex very little broader than the pronotum, rounded in front, not longer in the middle than towards the eyes, with a biarcuated band of vermillion, margin with a slight groove, ocelli a little remote from the eyes; face with the sutures concave, convex at tip, weakly impressed in front; lobes much rounded, genæ broad, apex convex, a little sinuate in front of the subocular piece; pronotum two and a half times broader than long, three times longer than vertex and with a vermillion band in front which starting from middle of anterior margin proceeds obliquely towards middle of lateral margins where it terminates in a round spot; scutellum broader than long with four round spots at base, two lateral towards the transverse striæ and the apex, vermilliou; tegmina hyaline, golden-yellow with the costal margin strong and vermillion to beyond the middle, veins blackish, with the transverse veins blacker and with two lateral spots along the border, three at the suture and the extremity, black; wings slightly infuscate with a paler space in the supplementary cellule; body and legs yellow-olivaceous, with deeper shades at the base of the abdominal segments; last ventral segment in ♀ scarcely longer than the preceding, emarginate in middle with a median lobe, the sides very oblique, trilobate; valvules thick, round, pubescent at the extremity; hairs yellow at base, black at tip; oviduct blackish, just extending beyond the valvules." (*Signoret.*)

Length ♀ 8 millim.

Hab. Burma.

I have not seen this species.

2539. **Selenocephalus virescens**, sp. n.

Vertex and head beneath ochraceous; prouotum pale dull olivaceous-green, its anterior margin ochraceous; scutellum ochraceous; tegmina pale dull olivaceous-green, costal margiu aud upper apical area ochraceous; sternum ochraceous; abdomen beneath and legs pale testaceous, abdomen usually with a central

segmental longitudinal series of black spots; abdomen above black, its apex ochraceous; vertex distinctly transversely impressed before apex; face smooth with transverse darker striæ on each side of anterior area; clypeus with a small central tubercle; pronotum with a few faint transverse ridges; scutellum transversely and a little arcuately impressed before apical area; anal appendage usually visible beyond the apices of tegmina; tibiæ prominently spinulose.

Length 4 to $4\frac{1}{2}$ millim.

Hab. Bengal; Pusa, Laksam, Dacca (*Lefroy*).

The tegmina when expanded are more uniformly greenish-ochraceous, and not olivaceous as when closed by reflecting the black abdomen beneath.

2540. **Selenocephalus disparatus,** *Melich. Hom. Faun. Ceylon*, p. 169 (1903).

"Somewhat long, elongated; vertex twice as broad as long, rounded in front, on its margin a furrow running from one eye to the other, bordered above and below by a black line, the lower line

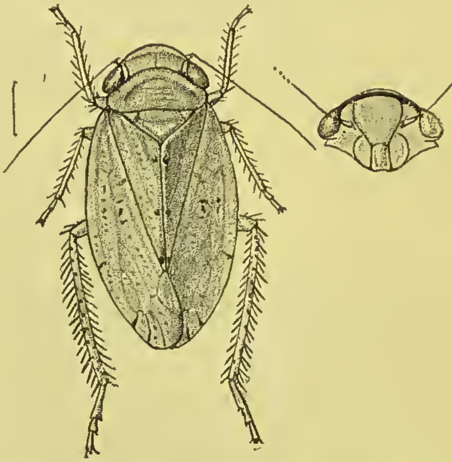

Fig. 185.—*Selenocephalus disparatus.*

generally stronger than the upper, transversely impressed on border of vertex; face pale yellow, on temples on each side a brown double spot and the antennal cavities brown; pronotum brownly spotted; scutellum with indistinct rusty-brown triangles in basal angles; tegmina yellowish-grey, with delicate dark brown veins and numerous small transverse dashes and dots between the veins, on the three outer transverse veins three larger black marginal spots; wings greyish-brown; body beneath and legs pale yellowish, very sparingly spotted with brown, posterior tibiæ with black spots at base of spines and the anterior and intermediate tibiæ outwardly with four or five black spots." (*Melichar.*)

Length ♂ 7 millim.

Hab. Ceylon; Pattipola, Kandy, Negombo, Paradua (*fide Melichar*).

The typical specimen figured is from the Museum Hongrois, and was kindly lent me for that purpose by Dr. Horváth.

2541. **Selenocephalus dolens,** *Melich. Hom. Faun. Ceylon,* p. 170, t. iv, f. 20 (1903).

"Vertex furrowed and bordered by two black lines, line of vertex broader than line of face, at ends "gewulstet," behind these a transverse line running from one eye to the other, in middle interrupted bow-like, arched; face pale yellow; second joint of antennæ brown; pronotum sparingly spotted with brown; scutellum with a brown triangle in each basal angle and in the middle with a deepened bow-shaped transverse line; tegmina brownish-yellow, shining, not marked, with darker veins; wings fuliginous; body beneath and legs pale yellow with black spots on posterior tibiæ." (*Melichar.*)

"Length ♀ 7 millim."

Hab. Ceylon (*fide Melichar.*)

Genus PARAMESUS.

Paramesus, *Fieb. Verh. z.-b. ges. Wien,* xvi, p. 506 (1866); *id. Rev. Mag. Zool.* (3) iii, p. 399 (1875); *Melich. Cic. Mitt.-Europ.* p. 201 (1896).

Type, *P. nervosus*, Fall., a Palæarctic species.

Distribution. Nearctic, Palæarctic and Oriental Regions.

"Margin of vertex linear, ridged above and below margin with short fine transverse wrinkles parallel to margin, hollowed out on the upper surface, the margin of vertex consequently somewhat raised; the whole face very finely shagreened; clypeus somewhat long, gradually widened to apex, almost spatulate, "zügel," not extending to end of clypeus, cheeks and middle of the sides very obtusely angulated, almost round; pronotum in front very flatly curved; face to vertex on ridge nearly sub-right-angularly obtuse, to the clypeus suddenly narrowed; ocelli on the ridge of vertex near the eyes; veins of tegmina distinct, the brown bordering of the veins strongly pronounced, the inner forked branch of first sector connected with the internal vein by two transverse veins so that there are two discal cells, three middle cells and five terminal cells are also formed; no marginal appendage. Direction of veins in tegmina as in *Selenocephalus.*" (*Melichar.*)

Fieber locates this genus near *Goniagnathus.*

2542. **Paramesus lineaticollis**, sp. n.

Vertex, pronotum and scutellum ochraceous; vertex with an arcuated transverse black fascia between the eyes, behind the fascia is a short medial incised dark line extending to base; pronotum with five longitudinal narrow fasciæ, the central narrowest and darkest, those on each side paler, broader and more brownish in hue; body beneath and legs pale ochraceous; face transversely brownly striate, medially longitudinally palely interrupted, on each side of clypeus a pale elongate spot outwardly margined with black; abdomen beneath with a marginal series

Fig. 186.—*Paramesus lineaticollis.*

of small piceous spots; posterior tibiæ streaked and spotted with piceous; tegmina dull pale ochraceous, the veins very prominent and much paler, a central prominent discal brown spot sometimes preceded nearer base by one or two smaller and linear dark spots; vertex short, transverse, rounded anteriorly, about three times as broad as long; face sub-convex; tibiæ longly spinulose.

Length 5 to 6 millim.

Hab. Bengal; Pusa (*Lefroy*).

Genus **MEGABYZUS**, nov.

Type, *M. signandus*, Dist.

Distribution. Ceylon.

Vertex broad, about twice as broad between eyes as long, convexly rounded in front of eyes, the posterior margin concave, ocelli on anterior margin a short distance from eyes and above the insertion of the antennæ; face broad, about three times as long as the clypeus, sinuate inside the antennal cavities, thence roundly sinuate to clypeus; eyes large, obliquely covering the anterior angles of the pronotum; pronotum longer than vertex, anteriorly rounded, the lateral margins medially angulate, convexly deflected

on each side, posterior margin concave; scutellum large, much broader than long, the lateral margins obliquely straight, transversely impressed before apical area; tegmina considerably longer than abdomen, the lateral margins convex, the apices roundly subangulate, apical cells apparently four (imperfectly seen in type), a series of long anteapical cells, two transverse veins about one-third from base; intermediate and posterior tibiæ spinulose.

2543. **Megabyzus signandus**, sp. n.

Vertex, pronotum and scutellum ochraceous; eyes piceous; body beneath and legs ochraceous; femora more or less piceous; tegmina ochraceous, the apical area pale greyish subhyaline, claval area black, inwardly more ill-defined and marginally broken into short irregular lines, beyond the clavus three broad irregular transverse black fasciæ, the uppermost shorter, the other two

Fig. 187.—*Megabyzus signandus.*

reaching the lateral margins, the intermediate with two small greyish dots, three small black spots, two of which are discal, the other marginal beyond middle; vertex with a short dark medial line not extending much beyond base, the ocelli red; pronotum with obscure darker spots, the most prominent of which are two central near anterior margin and one on each lateral area; scutellum with faint pale markings which appear under a very strong light as in figure (*supra*).

Length 6 millim.

Hab. Ceylon; Amotapuro (*Green*).

A single example received from Mr. Green.

Genus CENEDÆUS, nov.

Type, *C. horvathi*, Dist.

Distribution. Bombay.

Vertex about half as long as breadth between eyes; broadly rounded anteriorly, a little sinuate in front of eyes; ocelli on anterior edge near eyes; face about twice as long as clypeus, arched, lateral margins somewhat roundly narrowing to clypeus, cheeks broad, laterally subangulate; pronotum a little longer than vertex, its anterior margin rounded, lateral margins convex, posterior margin truncate; scutellum short, broad, lateral margins obliquely straight, transversely impressed near middle, longitudinally foveately impressed on basal area; tegmina longer than abdomen, four apical cells, the one near costa longest and at its base united by a transverse vein to apex of costal area and also to the base of a long anteapical cell, two short transverse veins on basal area; posterior tibiæ longly spinulose.

2544. **Cenedæus horvathi**, sp. n.

Pale stramineous with a slightly greenish tint; eyes inwardly blackish; tegmina paler and more greyish on apical area; body beneath and legs more ochraceous than above; face finely transversely striate, interrupted by a pale smooth longitudinal fascia,

Fig. 188.—*Cenedæus horvathi.*

cheeks much paler than the face; vertex smooth, subconvex, anteriorly deflected, with a short central incised line at base; pronotum with an interrupted, subarcuate incised line before the anterior margin; scutellum with three central longitudinal

foveations on basal area, not extending beyond the transverse impression.

Length 5 millim.

Hab. Bombay (*Biró—Mus. Hongrois*).

Dr. Horváth of Budapest kindly submitted a specimen of this distinct species for determination.

Genus KRISNA.

Siva, *Spin. Mem. di Matem. e di Fis. Soc. Ital. Modena*, p. 167 (1852); *Stål, Hem. Afr.* iv, p. 112 (1866); *Sign. Ann. Soc. Ent. Fr.* 1880, p. 197; *Atkins. J. A. S. B.* liv, p. 107 (1885); *Melich. Hom. Faun. Ceylon*, p. 167 (1903), nom. præocc.
Krisna, *Kirk. Entomologist*, xxxiii, p. 243 (1900), n. nom.
Eogypona, *Kirk. Entomologist*, xxxiv, p. 38 (1901).

Type, *K. strigicollis*, Spin.

Distribution. Ethiopian and Oriental Regions.

Body very oblong, somewhat depressed, above slightly convex; vertex narrower than the pronotum, short, rounded anteriorly or obtusely subangularly rounded, anterior margin somewhat acute but not foliaceous, vertex horizontal, flat, about twice as broad as the eyes; face dilated, frons and clypeus somewhat flat; frons longer than broad; clypeus spatuliform; genæ broad with the angle more or less angular and more or less emarginate; ocelli placed at the eyes on the anterior margin of the head; pronotum transverse, anteriorly narrowed, twice as broad as long, slightly rounded at anterior margin, almost straight before the scutellum, lateral margins acute; scutellum triangular, a little broader than long; tegmina barely extending beyond the abdominal apex, apically narrow, irregularly veined; legs moderate, posterior femora compressed, posterior tibiæ very spinose. (*Atkinson.*)

In the description of this genus I have followed Atkinson, who has extracted the principal characters given by the above mentioned writers.

2545. **Krisna strigicollis**, *Spin.* (Siva) *Mem. di Matem. e di Fis. Soc. Ital. Modena*, p. 167 (1852); *Sign. Ann. Soc. Ent. Fr.* 1880, p. 198, t. vi, f. 64; *Atkins. J. A. S. B.* liv, p. 108 (1885); *Kirk.* (Krisna) *Entomologist*, xxxiii, p. 243 (1900).
Acocephalus stramineus, *Walk. List Hom.* iii, p. 847 (1851); *Sign. Ann. Soc. Ent. Fr.* 1879, p. 88; *Atkins. J. A. S. B.* liv, p. 102 (1885).
Bythoscopus testaceus, *Walk. J. Linn. Soc., Zool.* i, p. 173 (1857).
Bythoscopus indicatus, *Walk. List Hom., Suppl.* p. 266 (1858).
Selenocephalus costalis, *Stål, Freg. Eug. Resa, Ins.* p. 290 (1859); *id.* (Siva) *Ann. Soc. Ent. Fr.* 1864, p. 66; *id. Öfv. Vet.-Ak. Förh.* 1870, p. 736.

Pale ochraceous, sometimes with a slight virescent tint; two

small black spots at apex of vertex and one at apex of each clavus; vertex with the anterior margin reflexed and often more or less sanguineous; pronotum strongly transversely striate;

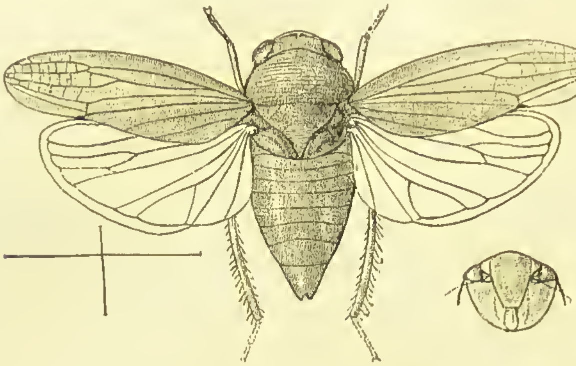

Fig. 189.—*Krisna strigicollis.*

scutellum with an oblique impression near each lateral angle and an arcuate impression before the apical area which is strongly transversely striate; tegmina rugulose and punctate; wings milky-white; face nsually with two darker sublateral fasciæ which are united posteriorly; posterior tibiæ strongly spinnlose.

Var. Upper surface more or less testaceous-brown.

Length incl. tegm. 9½ to 15 millim.

Hab. Bengal; Kanti, Pusa, Dacca, Raniganj, Memari (*Lefroy*); N.W. Prov., Mussoorie (*Lefroy*); Calcutta (*Ind. Mus.*); Kangra Valley (*Dudgeon*); Bombay (*Dixon*); Nilgiri Hills (*Hampson*), Dum Dum (*Paiva—Ind. Mus.*). Burma; Ruby Mines (*Doherty*). Tenasserim; Myitta (*Doherty*).—Malay Peninsula; Perak (*Doherty*). Cambodia (*Mouhot—Brit. Mus.*). Java. Borneo. Celebes. Sangir (*Doherty*). Philippines. North China (*Brit. Mus.*).

This widely distributed species is very variable in size and somewhat variable in markings. The largest specimen I possess is from Perak, and the smallest from Tenasserim. In some examples the two black spots at the apex of the vertex are absent. I have figured Walker's type of *stramineus.*

2546. **Krisna striata,** *Kirby* (Gypona), *Journ. Linn. Soc., Zool.* xxiv, p. 171 (1891); *Melich.* (Siva) *Hom. Faun. Ceylon,* p. 167 (1903).
? kirbyi, *Kirk. Entomologist,* xxxiii, p. 294 (1900).
Eogypona kirbyi, *Kirk. Entomologist,* xxxiv, p. 39 (1901).

"Yellowish-green (perhaps grass-green during life); tarsi, front tibiæ, and front of head, which is semicircular, reddish, the latter usually edged in front with black; pronotum and scutellum transversely striated; wings clear hyaline." (*Kirby.*)

K. striata is very closely allied to *K. strigicollis* and is doubtfully

distinct. In all the specimens I have seen the two black spots at the apex of the vertex are always absent; the insect is a more

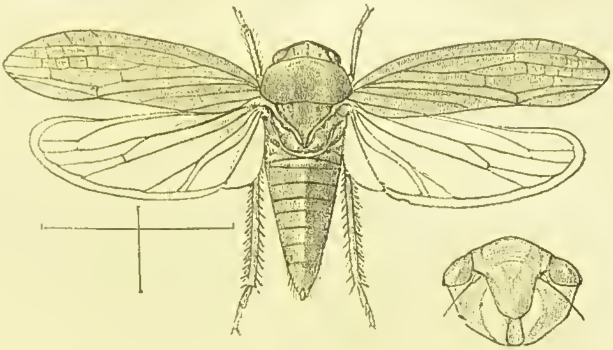

Fig. 190.—*Krisna striata.*

slender one, and there are some differences in the venation of the wings which may or may not be constant. I have figured Kirby's type.

Var. Base of pronotum and basal and inner areas of tegmina testaceous.

Length incl. tegm. 10 to 12 millim.

Hab. Ceylon; Kandy, Maskeliya, Pundaluoya (*Green*), Peradeniya, Moruwale, Gamaduwa, Haputale, Keigalle (*fide Melichar*).

2547. **Krisna sherwilli**, sp. n.

Vertex, pronotum and scutellum ochraceous; abdomen above testaceous-red; body beneath and legs pale ochraceous; tegmina golden-yellow; wings hyaline, slightly fuliginous; vertex about half as broad as breadth between eyes, finely transversely striate, its central area somewhat foveately depressed, its apical margin a little reflexed; eyes more or less fuscous; pronotum very distinctly transversely striate, its anterior area somewhat greyishly tomentose; scutellum somewhat discally depressed and less ochraceous and more testaceous than the pronotum, exhibiting an ochraceous spot in each basal angle, arcuately transversely impressed near middle, beyond which to apex it is distinctly transversely striate; anterior areas of the abdominal segments above paler and more ochraceous in hue; the ocelli on the margins of face and vertex castaneous; face laterally transversely striate, its anterior area arcuately transversely striate; posterior legs compressed, the femora apically spinulose, the tibiæ laterally longly spinulose.

Length excl. tegm. ♀ 8; exp. tegm. 20 millim.

Hab. Sylhet; Chandkira (*Sherwill*).

x 2

Genus ACROPONA.

Acropona, *Melich. Hom. Faun. Ceylon*, p. 168 (1903).

Type, *A. prasina*, Walk.
Distribution. Ceylon; Maldive Islds.

"Similar to *Gypona* and *Krisna*; differs from *Gypona* by the ocelli lying on the front border of the vertex near the eyes and from *Krisna* by the two claval veins being connected with each other by a transverse vein, and by the short vertex, broader than long, ridged in front and with the eyes as broad as pronotum, whereas in *Krisna* the vertex is distinctly narrower; face broad; rostrum short; otherwise as in *Krisna*. The direction of the veins in the tegmina is different. (*Melichar*.)

In *Acropona* the face possesses a distinct anterior transverse submarginal ridge.

2548. **Acropona prasina**, *Walk.* (Gypona) *List Hom., Suppl.* p. 258 (1858); *Melich.* (Acropona) *Hom. Faun. Ceylon*, p. 168 (1903).
? walkeri, *Kirk. Entomologist*, xxxiii, p. 294 (1900).
Eogypona walkeri, *Kirk. Entomologist*, xxxiv, p. 39 (1901).

Above pale green, beneath with legs ochraceous or pale virescent; eyes purplish-red; vertex about as long as half the width between eyes, its apical margin a little recurved, scutellum

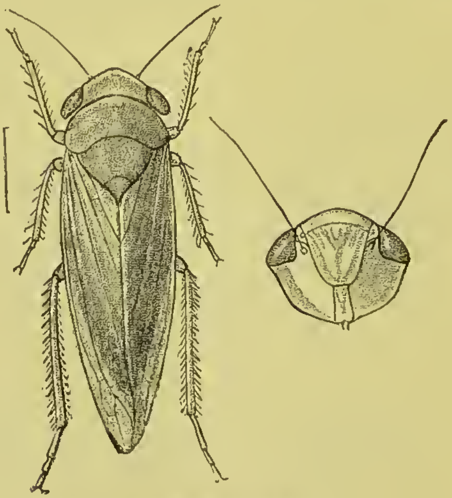

Fig. 191.—*Acropona prasina*.

transversely arcuately impressed before apical area; tegmina with about half of costal area broadly subhyaline; posterior tibiæ densely spinulose.

Length incl. tegm. 10 millim.

Hab. Ceylon (*Brit. Mus.*); Kandy, Maskeliya (*Green*), Peradeniya, Henaratgoda, Pundalnoya (*fide Melichar*). Maldives; Heddufuri (*Gardiner*).

The figure is taken from Walker's unique type in the British Museum.

Division *TARTESSUSARIA*.

Vertex about or more than three times broader between eyes than long; ocelli on or near the anterior margin of vertex and nearer eyes than to each other.

Synopsis of Genera.

A. Both pronotum and vertex angularly produced in front of eyes .... TARTESSUS, p. 302.
B. Pronctum not angularly produced in front of eyes.
  a. Pronotum three times as long as vertex . GESSIUS, p. 301.
  b. Pronotum twice or little more than twice as long as vertex.
    a. Face about as long as broad at base.
      a'. Cheeks broad, not obliquely angulate.
        *a*². Head beneath broader between eyes than long .... DRABESCUS, p. 304.
        *b*². Head beneath as broad between eyes as long .... CESTIUS, p. 309.
      b'. Cheeks somewhat narrow but obliquely angulate............... GONIAGNATHUS, p. 310.
    b. Face longer than broad at base ...... KUTARA, p. 308.

Genus **GESSIUS**, nov.

Type, *G. verticalis*, Dist.

Distribution. Burma.

Vertex transverse, rounded between the eyes, three times broader between eyes than long, outer margins of eyes in line with the margins of vertex; ocelli on anterior margin of head, nearer to eyes than to each other; bead beneath long and broad, face somewhat small, narrowing to clypeus; clypeus widened posteriorly, its apical margin ridged, sinuately reflexed; lateral margins of the cheeks ridged, reflexed; pronotum about three times as long as vertex, arched, a little anteriorly narrowed, lateral margins obliquely straight, anterior margin convexly rounded, concave before scutellum which is subtriangular, its apex slender; tegmina longer than abdomen, valvate behind clavus, four apical cells, three anteapical cells, clavus coarsely linearly punctate; posterior tibiæ strongly spinulose.

2549. **Gessius verticalis,** sp. n.

Head, pronotum, scutellum, body beneath and legs shining pale ochraceous; scutellum with three large darker spots, one central and one at each basal angle; tegmina pale ochraceous, the claval area fuscescent, this colour longitudinally continued to apex of tegmina; vertex finely transversely striate with a faint central

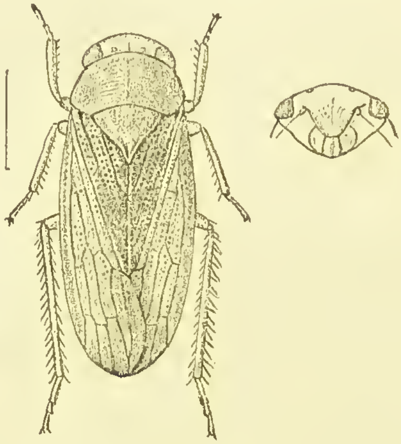

Fig. 192.—*Gessius verticalis.*

longitudinal line; ocelli purplish-red; pronotum finely transversely striate, foveately depressed on each side behind eyes; tegmina with a minute black spot on middle of basal margin, clavus longitudinally coarsely punctate, face obscurely transversely striate on each lateral area.

Length incl. tegm. ♀ 11 millim.

Hab. Burma; Ruby Mines (*Doherty*).

Genus TARTESSUS.

Tartessus, *Stål, Öfv. Vet.-Ak. Förh.* 1865, p. 156; *Sign. Ann. Soc. Ent. Fr.* 1878, p. 347; *Spangb. Öfv. Vet.-Ak. Förh.* 1877, no. 9, p. 3.

Type, *T. ferrugineus*, Walk.

Distribution. Eastern British India; Malay Peninsula and Archipelago.

Body oblong; vertex broad, short, in front of eyes strongly angularly-roundly produced, shorter or narrower at apex; head beneath strongly reclinate, face moderately flattened, a little narrowed posteriorly; eyes large, oblique; ocelli placed on margin of vertex near eyes; pronotum large, anteriorly very strongly, roundly,

and subangularly produced: scutellum longer than broad, about as long as pronotum; tegmina oblong, apex somewhat valvate, apical cells five; posterior tibiæ densely spinulose.

2550. **Tartessus ferrugineus**, *Walk.* (Bythoscopus) *List Hom.* iii, p. 865 (1851); *Stål* (Tartessus), *Öfv. Vet.-Ak. Förh.* 1870, p. 738; *Sign. Ann. Soc. Ent. Fr.* 1880, p. 356; *Spangb. Öfv. Vet.-Ak. Förh.* 1877, no. 9, p. 7 *.

Bythoscopus malayus, *Stål, Freg. Eug. Resa, Ins.* p. 290 (1859); *id.* (Tartessus) *Öfv. Vet.-Ak. Förh.* 1865, p. 156; *Sign. Ann. Soc. Ent. Fr.* 1880, p. 357.

biarcuatus, unilineatus, *and* unifascia, *Walk. MS.*

Vertex, pronotum, scutellum, body beneath and legs golden-yellow; abdomen above black with the segmented margins, an oblique spot on each side of base and a broad posterior margin to penultimate segment ochraceous; tegmina bronzy-yellow, the veins black or piceous, and the costal area black to beyond middle;

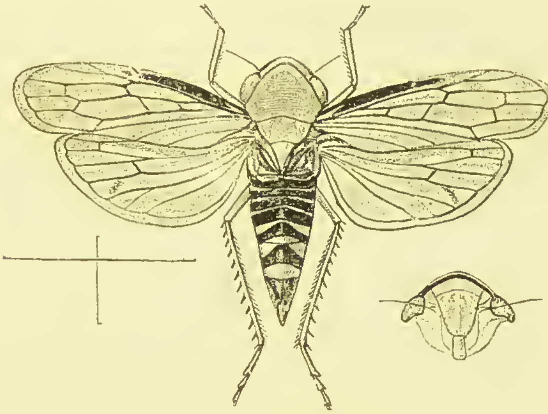

Fig. 193.—*Tartessus ferrugineus.*

wings bronzy-yellow, the venation piceous, an oblique piceous spot near outer margin; head beneath with an arcuate marginal black band between the eyes; lateral margins of sternum broadly black; pronotum finely transversely striate; scutellum strongly transversely impressed before apical area; spinules of posterior tibiæ long and robust.

Length incl. tegm. 9–11 millim.

Hab. Tenasserim; Myitta (*Doherty*).—Malay Peninsula; Perak, Malacca. Java. Mysol. Ke. Aru (*Brit. Mus.*). Japan (*fide Matsumura*).

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* Spangberg (*supra*) and Matsumura (Trans. Sapporo Nat. Hist. Soc. i, p. 20, 1905) ascribe this species to Stål, who, however, correctly referred it to Walker.

Genus DRABESCUS.

Drabescus. *Stål, Öfv. Vet.-Ak. Forh.* 1870, p. 738; *Atkins. J. A. S. B.* liv, p. 109 (1885).
Dabrescus, *Sign. Ann. Soc. Ent. Fr.* 1880, p. 207; *Melich. Hom. Faun. Ceylon,* p. 170 (1903).

Type, *D. remotus*, Walk., from the Philippines.

Distribution. India, Malaya. (Probably much more widely distributed.)

Ocelli remote from the eyes, almost more so than the antennæ; anterior tibiæ above broadly subsulcate; superior margin of the anterior tibiæ distinctly dilated (*Stål*). Vertex broadly transverse, short, moderately concave, the anterior margin ridged; head beneath much broader than long, the face a little longer than broad, somewhat flat; pronotum transverse, much broader than long, anterior margin convex; scutellum large, broad, subtriangular; tegmina with four large distinct apical cells divided by smooth veins, the remaining venation punctate.

2551. **Drabescus nervosopunctatus,** *Sign.* (Dabrescus) *Ann. Soc. Ent. Fr.* 1880, p. 209, t. vii, f. 72; *Atkins.* (Drabescus) *J. A. S. B.* liv, p. 109 (1885).

Yellow spotted with brown; vertex very short, at least four times as broad as long between the eyes, a little longer towards the eyes than in the middle, in front a blackish patch and in the middle a black median line; ocelli as remote from the eyes as from the median line; frons black, very finely rugose, almost as long as broad at the base, which is yellowish, but bounded on the margin itself of the head by a blacker line which is continued on the eyes in a lighter shade; "scrobe" oblique, reaching the vertex at the level of the eyes; clypeus black, carinate, spatuliform, rugose, and with two small excavations at the tip; genæ yellow with a blackish spot beneath; the antennæ punctured with yellow dots, almost as broad as long, with the border free, straight from the clypeus to the external angle of the eye, with a weak sinuosity above the anterior coxæ and a stronger one beneath the eyes; antennæ very short, yellow, the base of the second joint and the third joint black; pronotum nearly thrice as broad as long, yellowish-brown, with brown spots furnished with light yellowish round dots, finely transversely striated in all its length; scutellum brown, with irregular, long or round yellowish dots; tegmina golden yellow-hyaline, in appearance rugose and furnished with brown almost black veins with regularly placed white dots; a fascia at the basal third and almost the upper half brown, lighter in the middle, but forming deep spots on the side in a line with the transverse discoidal vein on the suture at the level of the tip of the clavus, in a line with the transverse veins of the apical cellules, extremity of the apical cellules and the limbus blackish; wings hyaline, infuscate at apices; pectus and legs yellowish-brown, bases of the spines of the posterior tibiæ and the tips of the claws

blackish; abdomen yellow, with the median part of the upper surface broadly black, a narrow median band on the under surface, the apex of the last segment and the oviduct black; ♀ with the last segment twice as long as the preceding, weakly sinuate at the tip with a very small extension in the middle. (*Signoret.*)

Length ♀ 10 millim.

Hab. "North India."

I have not yet seen this species in any of the Indian collections which I have examined.

2552. **Drabescus angulatus**, *Sign.* (Dabrescus) *Ann. Soc. Ent. Fr.* 1880, p. 210, t. vii, f. 73; *Atkins.* (Drabescus) *J. A. S. B.* liv, p. 110 (1885).

In appearance very like *D. nervosopunctatus*, Sign., from which it differs by the vertex being angular in the middle, frons longer; tegmina rugose although hyaline, the rugosities very close to each other, yellow, whitish at the apex and streaked with black in the hollows which they form, veins brown alternated with white dots, clavus with two transverse veinlets, one between the two veins and the other between the anal vein and the claval suture;

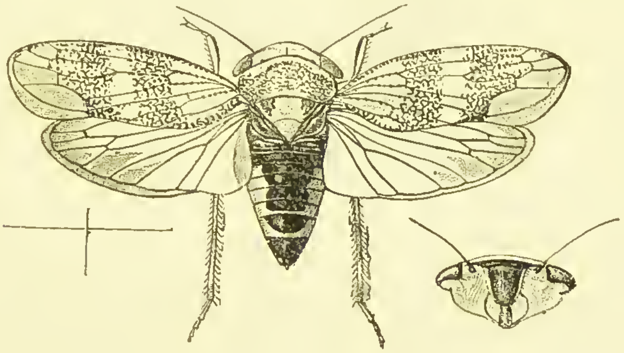

Fig. 194.—*Drabescus angulatus.*

tegmina with a white, rugose, hyaline, basal fascia, a broad fascia streaked black, a white hyaline fascia, a broad fascia streaked with black on the anteapical areas, the length of the apical cells of a golden hyaline-yellow, glossy not rugose, the marginal border deeper infuscate with a brown spot at the tip of the fourth external apical area; vertex very short, angularly rounded in front, a little longer in the middle than towards the eyes, concave in the latter direction, convex in the middle, the extreme edge forming a light yellow ridge bounded on the vertex by a black line, on the frons by a black fascia confluent with the frons itself, which is black, yellowish-brown at the tip and along the sides, longitudinally striated and without lateral grooves. Other characters as in *D. nervosopunctatus*, except that the ♀ has the last ventral segment strongly emarginate in the middle, sinuated on the sides, the angles

angularly rounded, and at this point twice as long as the preceding segment, although in the middle it is hardly as long; oviduct and genital plates yellow, the latter a little shorter of the two. (*Signoret.*)

Length excl. tegm. 8; exp. tegm. 20 millim.

Hab. "North India" (*fide Signoret*). Mussoorie (*Lefroy*).

I have copied Signoret's description and figured a specimen from Mussoorie which agrees with it.

2553. **Drabescus conspicuus**, sp. n.

Vertex of head testaceous, its anterior margin black; pronotum ochraceous, its anterior margin white; scutellum ochraceous, its apical area whitish; head beneath with the anterior area black, the posterior area stramineous, extreme anterior margin white, face black, its lateral margins and a spot at inner margin of each

Fig. 195.—*Drabescus conspicuus.*

eye pale castaneous; body beneath piceous, lateral areas of pro- and mesosterna stramineous, the first with a large black spot; legs pale brownish-ochraceous; tegmina pale brownish-ochraceous, the veins darker marked with small whitish spots, a transverse whitish fascia across middle, the clavus, costal margin and two costal spots behind middle piceous-brown; vertex slightly longer at apex; pronotum transversely striate, with paler speckles on posterior disk; apical area of scutellum a little foveate; face finely longitudinally ridged.

Var. Head beneath with the anterior area and the face testaceous.

Length incl. tegm. 7 millim.

Hab. Ceylon; Peradeniya (*Green*).

2554. **Drabescus stramineus**, sp. n.

Allied to the preceding species, *D. conspicuus*, but with the vertex distinctly longer and apically more angulate; tegmina brown, reflecting on their lateral areas a large abdominal strami-

neous spot; body beneath and legs stramineous, a black spot on each side of prosternum; anal appendage beneath, in ♀ inwardly and outwardly margined with black; head beneath and face

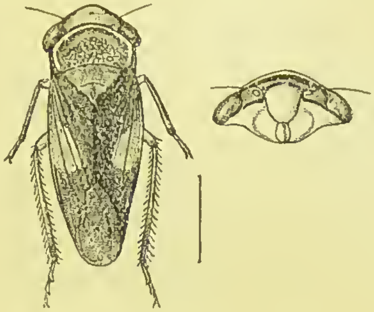

Fig. 196.—*Drabescus stramineus.*

stramineous, anterior margin between the eyes piceous, its extreme anterior edge whitish; vertex transversely ridged; pronotum thickly finely transversely striate; scutellum strongly transversely impressed before apical area.

Length incl. tegm. 10 millim.

Hab. Nilgiri Hills (*Hampson*).

2555. **Drabescus lætisigna**, *Walk.* (Bythoscopus) *J. Linn. Soc., Zool.* i, p. 174 (1857).

Head, pronotum, scutellum, body beneath and legs pale ochraceous; anterior margin of vertex, two spots near anterior margin, a broken narrow discal curved fascia and lateral margins to pronotum, two small central spots at base and three at apex of scutellum orange-red; tegmina pale ochraceous-hyaline, the costal area and a basal spot orange-red, veins brownish, three spots on inner margin of clavus, a narrow transverse discal spot before middle, two larger subcostal spots beyond middle, two smaller ones in a line with them near inner margin, and the apical margin piceous; apical margin of vertex somewhat strongly reflexed; pronotum very finely transversely striate, the orange-red markings a little raised; scutellum strongly transversely impressed before apical area, the apex and apical lateral margins raised.

Length incl. tegm. 10 millim.

Hab. Tenasserim; Myitta (*Doherty*).—Borneo; Sarawak (*Wallace —Brit. Mus.*).

2556. **Drabescus limbaticeps**, *Stål* (Selenocephalus), *Öfv. Vet.-Ak. Förh.* 1858, p. 453; *Melich.* (Dabrescus) *Hom. Faun. Ceylon*, p. 170 (1903).

" Posteriorly narrowed, plumbeous; front, genæ towards base, vertex and thorax ferruginous, head towards apical margin paler,

above and beneath terminating in a transverse black line, vertex and a number of minute spots on anterior margin of pronotum paler; scutellum with the basal half infuscate, apical area less so; tegmina obscure pellucid vinaceous, veins fuscous speckled with white, a discoloured medial fascia."

"Head broader than pronotum, broadly subangulately rounded, anteriorly distinctly attenuated; vertex subarcuate, medially longitudinally and on each side transversely obliquely rugulose; front towards base transversely depressed, longitudinally rugose; genæ rugulose; pronotum medially three times longer than the vertex, anteriorly rounded, scarcely longer than scutellum; tegmina tectiform, a little passing the abdominal apex, excepting the four apical areoles, rugose, from the commissure outwardly by degrees decreasing in size; spines to the posterior tibiæ with black punctures." (*Stål.*)

"Length ♀ 9, breadth 3 millim."

"*Hab.* Ceylon (*Coll. Dohrn*)."

Melichar has included this species in the genus *Drabescus*, though Signoret did not follow this course. I have no personal knowledge of it.

Genus **KUTARA**, nov.

Type, *K. brunnescens*, Dist.

Distribution. Ceylon.

Vertex broad, transverse, convexly rounded anteriorly, short, about equal length throughout, ocelli small, obscure, on anterior margin at a short distance from eyes; face narrowed on apical area towards clypeus, the apex of which is distinctly broadened, cheeks very broad; pronotum about twice as long as vertex, anteriorly moderately produced and rounded between eyes, the lateral margins nearly straight, posterior margin transversely sinuate; scutellum large, broad, its apex linearly produced, a transverse incision before apical area; anterior and intermediate legs of moderate length, posterior tibiæ somewhat long and thickly longly spinulose; tegmina moderately broad and short, apical cells five, three transverse veins (sometimes only two) in claval area, a transverse vein to radial area. (The venation better seen and understood by the typical figure.)

2557. **Kutara brunnescens**, sp. n.

Vertex stramineous, smooth, with an anterior transverse black line, sometimes centrally widened into a transverse black spot; pronotum pale brownish with darker mottlings, its anterior area usually but not always suffused with black; scutellum dull ochraceous with an obscure spot near each basal angle, centrally mottled

with brown, the apical area pale; head beneath ochraceous, the antennal cavities piceous, the face with a dark central longitudinal line and short dark transverse lateral striations on each

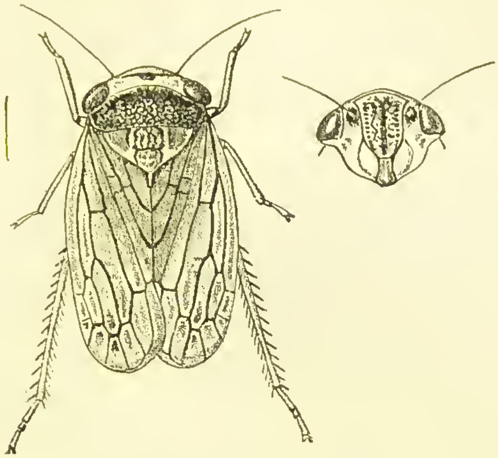

Fig. 197.—*Kutara brunnescens.*

side; body beneath and legs ochraceous; tegmina pale olivaceous-brown, the veins piceous-brown and with piceous-brown maculate markings in the apical and anteapical cells, apical margin infuscate; posterior tibiæ streaked and finely spotted with piceous-brown.

Length ♀ $6\frac{1}{2}$–7 millim.

Hab. Ceylon; Peradeniya, Kandy (*Green*).

Genus CESTIUS, nov.

Type, *C. versicolor*, Dist.

Distribution. Bengal.

Vertex about three times as broad as long, transverse, moderately globose, anteriorly rounded; eyes projecting beyond the lateral margins of the pronotum, ocelli on anterior margin near the eyes; head beneath about as long as breadth between eyes, face about as long as broad at base, lateral margins a little sinuate before eyes, from insertion of antennæ angularly narrowed to clypeus which is about half as long as face, margins of cheeks sinuately rounded, not angulate; pronotum transverse, nearly twice as long as vertex, lateral margins rounded, posterior margin truncate, convexly rounded between eyes, the disk convexly arched; scutellum broader than long; legs moderately slender, posterior tibiæ strongly spinulose; tegmina extending beyond the abdominal apex, costal margin convexly rounded, four apical cells, one or two (inconstant) transverse veins near base; wings broad, ample.

2558. **Cestius versicolor**, sp. n.

Vertex ochraceous; pronotum and scutellum greenish-ochraceous; body beneath and legs ochraceous; abdomen above black, the lateral and posterior segmental margins ochraceous; tegmina dull greyish irrorated with brown, the brown markings most prominent before and beyond middle and on apical area, and usually leaving three pale spots on costal margin; vertex short,

Fig. 198.—*Cestius versicolor*.

transverse, about three times broader than long, with two small dark spots near base of the same colour as the ocelli; pronotum with two transverse foveations near anterior margin and a larger one near each lateral margin; face smooth with a few obscure darker striations on each lateral margin; tibiæ finely longly spinulose.

Length $4\frac{1}{2}$ to 5 millim.

Hab. Bengal; Pusa (*Lefroy*).

Genus GONIAGNATHUS.

Goniagnathus, *Fieb. Verh. z.-b. Ges. Wien*, xvi, p. 506 (1866); *id. Rev. May. Zool.* (3) iii, p. 409 (1875); *Van Duz. Tr. Am. Ent. Soc.* xix, p. 299 (1892); *Melich. Hom. Faun. Ceylon*, p. 180 (1903).

Type, *G. brevis*, Herr.-Sch., a Palæarctic species.

Distribution. Nearctic, Palæarctic and Oriental Regions; probably more widely distributed.

"Body short, robust, compressed, broad; vertex three or four times as broad as in middle long, the border broadly rounded off to the front; ocelli on the passage from vertex to front on inner side of frontal suture; face as long as above broad, or about twice as broad as at clypeus, with punctate spots on the transverse stripes; clypeus rectangular, at base somewhat narrowed, "zügel" broad, semicircular, cheeks broad, forming an obtuse angle on the outer side; pronotum nearly three times as long as vertex, strongly obliquely striped and wrinkled, on front border smooth; tegmina broad, covering tip of abdomen, with strong veins, the simple

inner sector connected with the inner fork of outer sector by two oblique veins; legs strong, posterior tibiæ with strong bristles." (*Melichar.*)

2559. **Goniagnathus punctifer**, *Walk.* (Bythoscopus) *Ins. Saund., Hom.* p. 104 (1858); *Atkins.* (Bythoscopus) *J. A. S. B.* lv, p. 199 (1886).

Goniagnathus spurcatus, *Melich. Hom. Faun. Ceylon*, p. 181 (1903).

Goniagnathus elongatus, *Leth. Bull. Soc. Zool. France*, 1892, p. 209.

Vertex, pronotum and scutellum brownish-ochraceous, the vertex with some obscure darker spots; abdomen above black, the segmental margins narrowly ochraceous; body beneath and legs castaneous-brown or brownish-ochraceous, sternum with a piceous fascia on each lateral area sometimes absent, legs annulated with

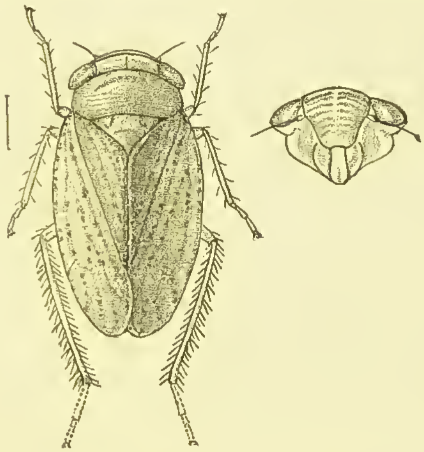

Fig. 199.—*Goniagnathus punctifer.*

piceous; tegmina pale brownish-ochraceous, the costal margin and veins finely spotted with brown; wings pale fuliginous and with a greyish-white streak beneath radial area; pronotum very finely transversely striate; head beneath brownish-ochraceous; face finely transversely brownly striate, medially palely longitudinally interrupted, cheeks with irregular brownish lines.

Length excl. tegm. 6; exp. tegm. 12 mm.

Hab. East Himalayas; Kurseong (*Ind. Mus.*). Bengal; Calcutta (*Ind. Mus.*); Pusa (*Lefroy*); Surat (*Lefroy*); Mussoorie (*Lefroy*); Mahé (*Deschamps*). Ceylon; Peradeniya (*Green*), Colombo, Negombo, Kandy (*Mus. Hongrois*). Lower Burma; Taungoo (*Bingham*). Maldive Islands; Minikoi (*Gardiner*).

The specimen figured is a cotype of Melichar's *G. spurcatus* in the Budapest Museum; the description is mainly taken from Walker's unique type in the British Museum.

2560. **Goniagnathus nervosus**, *Melich. Hom. Faun. Ceylon*, p. 180 (1903).

"Yellowish-brown, finely duskily sprinkled; vertex about four times as broad as medially long, in front broadly rounded, disk arched, finely longitudinally "nadelrissig," along the front margin somewhat transversely impressed with two reddish-brown bow-shaped transverse bands, the front margin itself pale yellow; eyes not prominent, brown; head beneath yellowish spotted with brown and reddish-brown; face on sides with several black transverse lines irregular in middle and which coalesce in places, cheeks, "zügel" and clypeus spotted with reddish-brown, antennæ brown; pronotum thickly and finely sprinkled with brown, with fine greyish longitudinal stripes of which the middle one is continued on the scutellum; scutellum thickly sprinkled with brown, a deepened transverse line in middle; tegmina broad, yellowish-brown, with strong thickened veins which are accompanied by five brown atoms and irregularly spotted, the costal marginal vein spotted with brown; wings fuliginous with dark veins; pectus yellowish-brown; coxal laminæ below the cheeks brown and palely margined; abdomen yellowish-brown, thickly spotted with brown; legs longitudinally striped with brown, the disk of tibiæ striped with brown, tips of tarsi and claws brown." (*Melichar.*)

"Length ♂ & ♀ 6 millim.

Hab. Ceylon; Peradeniya (*fide Melichar*).

This species, which I have not seen, may prove to be a variety of the preceding *G. punctifer*, Walk.

2561. **Goniagnathus uniformis**, sp. n.

Ochraceous, legs very pale testaceous; vertex, pronotum, scutellum and tegmina uniformly ochraceous, apical area of tegmina a little paler; eyes and ocelli purplish-red; vertex short, transverse, three times broader than long; pronotum very finely transversely striate; face pale ochraceous, the lateral areas much darker; tibiæ longly, finely spinulose.

To be separated from the preceding species by its uniform coloration and the non-prominent venation to the tegmina.

Length 5 millim.

Hab. Bombay Presidency; Surat (*Lefroy*).

Mr. Lefroy sent a single example of this species.

Genus MESARGUS.

Mesargus, *Melich. Hom. Faun. Ceylon*, p. 175 (1903).

Type, *M. asperatus*, Melich.
Distribution. Ceylou.

"Head with eyes broader than pronotum; vertex narrow, band-like, in the middle narrowest, at the eyes deeply excavate, anteriorly towards the front "kantig abgesetzt," the front below the border of the vertex concave, on the border of the vertex stand the ocelli which are nearer to each other than to eyes; face broader than long, front lyre-shaped, above arch-line margiued, antennal cavities very deep, bordered above and on each side by a sharp ridge, cheeks on outer margin rather flatly bayed; "zügel" very prominent by sharply deepened sutnres, somewhat arched, not enclosed by the cheeks; clypeus very short, deepened, at the pectus depressed; rostrum extending to middle coxæ; pronotum seen from the side very strongly arched, at front margins strongly depressed, deeply punctured; scutellum short, broadly triangular, a broadened transverse line at middle; tegmina narrowed behind, rounded off at tip, parchment-like, deeply wrinkled and punctured, veins strong, prominent, outer longitudinal vein forked near base, second longitudinal vein simple, three auteapical and five short apical cells; legs short, tibiæ strongly angulate, rather flattened, widened, posterior tibiæ without bristles." (*Melichar.*)

I have not seen this genus, but from Melichar's description and figure, both of which are here reprodnced, it is allied to my genus *Moonia* (*ante*, p. 197) which I have placed in the Bythoscopinæ. It differs from *Moonia* by the structure of the vertex, pronotum and scutellum, but the venation of the tegmina and structure of the head beneath have much in common. It is, however, iu the position of the ocelli that we appear to differ as to the location of these genera. The ocelli only being seen in front has been my reason for placing *Moonia* in the Bythoscopinæ, and if that view is sound, *Mesargus* (which I only know by figure and description) should be placed near it, and not in the Acocephalous Jassinæ as advised by Melichar.

2562. **Mesargus asperatus**, *Melich. Hom. Faun. Ceylon* p. 176, t. iv, f. 12, *a*, *c* (1903).

"Yellowish-brown, strongly wrinkled and punctured, eyes somewhat long and oval, large, brown; face yellowish, strongly punctured, upper part brown as far as the heart-shaped frontal suture; pronotnm deeply punctured, dark brown, sprinkled with numerous small clear white dots, anterior border broad, pale brownish-yellow, on each side near anterior margin a little hnmped elevation, the very fine whitish middle line on surface of pronotum very indistinct; scutellum short, broadly triangular, a deepened transverse line in middle; tegmina narrowed behind and

rounded at tip, parchment-like, deeply wrinkled and punctured, dark brown, veins brown, set with remote white spots, in middle of clavus a hyaline transverse whitish fascia and a second fascia on anterior third of corium which runs from costal margin to claval

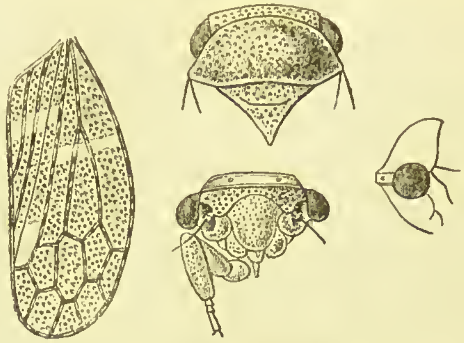

Fig. 200.—*Mesargus asperatus.*

suture, a large white spot behind tip of clavus, the apical margin of membrane dirty-white; wings fuliginous with dark veins; pectus and abdomen brownish-yellow, punctate; legs brownish-yellow, the flattened strongly ridged tibiæ sprinkled with brown, tips of tarsi and claws brown." (*Melichar.*)

"Length ♀ 5 millim."

Hab. Ceylon; Henaratgoda (*fide Melichar*).

I have no personal knowledge of this species.

Division *THAGRIARIA.*

A section to be recognized by the long and narrow face; vertex produced in front of eyes, usually long and narrow with the margins ridged, thus giving the disk a foveate or excavate appearance.

Synopsis of Genera.

A. Vertex twice as long as broad.
  a. Scutellum large, broad, considerably longer than pronotum . . . . THAGRIA, p. 315.
  b. Scutellum small, not longer than pronotum. MUKWANA, p. 317.
B. Vertex only a little longer than broad.
  a. Face concavely narrowed at eyes from which it is not separate . . . . PUGLA, p. 318.
  b. Face with the lateral margins straight or almost straight, subparallel, and well separate from eyes.
    a. Vertex wider at apex than at base; face a little more than twice as long as broad . . . . SOORTANA, p. 319.
    b. Vertex not narrowed at base; face a little more than three times longer than broad. VARTA, p. 320.

Genus THAGRIA.

Thagria, *Melich. Hom. Faun. Ceylon,* p. 176 (1903).

Type, *T. fasciata*, Melich.
Distribution. Ceylon.

"Near *Jassus.* Vertex longish, oval, narrow, attenuated behind and anteriorly, carinate on sides, the surface excavated ; face long, narrow, nearly parallel-sided ; clypeus nearly half as long as face*, spatulate in shape, passing end of cheeks ; rostrum extending to posterior coxæ ; pronotum distinctly carinate in middle ; tegmina extending to tip of abdomen, somewhat widened behind and rounded-off, venation as in *Jassus* ; from the latter genus *Thagria* differs strongly by the structure of the vertex and the carinate pronotum." (*Melichar.*)

The scutellum is large and broad, and longer than the pronotum.

2563. **Thagria fasciata,** *Melich. Hom. Faun. Ceylon,* p. 176, t. iv, f. 9 *a* (1903).

"Vertex white, its tip, a band between the eyes broken in the middle, and a small spot in the nape, black, at the tip to the vertex are three black spots surrounded by white rings, the lateral points represent the front ends of the lateral carinæ of the vertical margin; face black, in the middle longitudinally wrinkled, on the sides with transverse rows of dots ; clypeus, "zügel," and a spot on the cheeks black; antennæ pale yellow; pronotum and scutellum brown, pale yellowishly confluently punctured ; tegmina brown with numerous yellow to orange dots, and a similarly coloured broad transverse band beyond the middle, which is usually divided into three spots, the marginal spot especially encloses a dark marginal spot or is divided into two marginal spots, apical veins with orange-yellow dots ; wings fuliginous ; underside black, margins of segments bordered with white ; legs yellowish, posterior legs rather darker." (*Melichar.*)

"Length ♀ 6 millim."

Hab. Ceylon (*fide Melichar*).

2564. **Thagria signata,** sp. n.

Body and legs ochraceous ; vertex with a transverse fascia in front of eyes and a spot at apex black ; face near base with a longitudinal marginal black spot on each side, and a minute central black spot at base, the striations on each side a little darker in hue ; scutellum with a brownish triangular spot on each basal angle ; segmental abdominal margins a little darker ; tegmina pale ochraceous, the veins paler, a transverse series of fuscous-brown spots before apex, the costal spot largest, beyond this transverse series the veins are spotted with fuscous-brown ; wings pale

* This character requires modification, and is better expressed as more than a third as long as face.

fuliginous, the veins piceous; vertex centrally foveate, strongly laterally ridged; pronotum discally granulose, centrally longitudinally ridged; clypeus scarcely more than one-third the length of face; posterior tibiæ longly and finely spinulose.

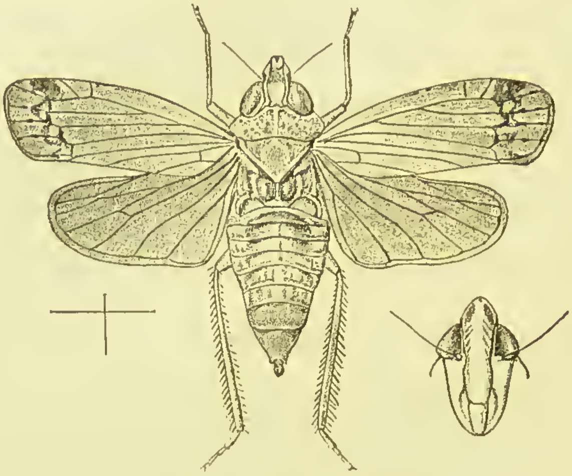

Fig. 201.—*Thagria signata.*

Length excl. tegm. ♀ 7; exp. tegm. 12 millim.

Hab. Ceylon (*Green, Coll. Dist.*).

Mr. Green has sent me a single specimen of this well-marked species.

2565. **Thagria pedestris**, sp. n.

Vertex, pronotum and scutellum pale ochraceous or greyish-ochraceous, vertex with a small spot at apex, two elongate subapical spots divided by the central ridge, two spots near middle divided by the central ridge, and a spot on lateral margins in front of eyes, black; behind the middle spots are two short oblique piceous lines and some small piceous spots on basal margin; pronotum with fine piceous mottlings; scutellum with a piceous spot near each basal angle; face pale ochraceous with a central longitudinal series of fine piceous mottlings, a black spot on each side of base, the lateral areas with transverse black ridges, cheeks pale ochraceous, posteriorly mottled with piceous, behind eyes an elongate black spot, the lateral margin ochraceous; eyes blackish with their margins ochraceous; sternum and body beneath black; anterior and intermediate legs ochraceous, streaked with brown, apices of femora and tibiæ pale ochraceous, tarsi spotted with black; posterior legs black, the tarsi ochraceous spotted with black; tegmina pale dull greyish-ochraceous, the veins whitish spotted with piceous; vertex finely obscurely centrally ridged, excavate and laterally ridged; pronotum finely transversely striate,

with a strong central longitudinal ridge; scutellum transversely impressed before apical area, between which impression and base is a central longitudinal carination; face long and narrow; posterior tibiæ strongly spinulose.

Length incl. tegm. 6½ millim.

Hab. Ceylon; Hakgala (*Green*).

Mr. Green sent me a single specimen of this well-marked species.

Genus **MUKWANA**, nov.

Type, *M. introducta*, Dist.

Distribution. Ceylon.

Vertex somewhat longly triangular, centrally longitudinally foveate, more profoundly so in front of eyes than between them, attenuated anteriorly and posteriorly, the lateral margins ridged; face elongate, angularly narrowed at base, strongly sinuately narrowed at inner margins of eyes; pronotum centrally carinate, the anterior margin moderately convex, the posterior margin a little concavely sinuate; scutellum small, triangular, not longer than pronotum, transversely impressed beyond middle; tegmina slightly passing the apex of the abdomen, somewhat broad, the costal margin rounded, apex truncately rounded, apical cells four; posterior tibiæ long and thickly finely spinulose.

2566. **Mukwana introducta**, sp. n.

Vertex black, the basal area between eyes and the lateral ridges

Fig. 202.—*Mukwana introducta.*

more or less brownish; eyes piceous margined with brownish; head beneath (including face and clypeus) black; pronotum brownish reticulately speckled with piceous; scutellum brownish

(imperfectly seen in badly pinned type); tegmina pale brownish, the costal area and a transverse fascia before apex black, near the apex of the black costal fascia is a linear subtriangular golden-yellow spot, on the transverse fascia a series of small yellow spots, the veins in pale apical area spotted with black; body beneath black, anterior and intermediate legs ochraceous, coxæ and posterior legs black, an apical annulation to posterior tibiæ and annulations to posterior tarsi ochraceous; face obscurely punctate; pronotum granulose and with some obscure longitudinal lines on each lateral area.

Length incl. tegm. 6 millim.

Hab. Ceylon; Kurungala (*Green*).

Genus PUGLA, nov.

Type, *P. sigillaris*, Dist.

Distribution. Tenasserim.

Vertex subconically produced in front of eyes, the apex moderately nodulose, depressed or foveate on disk, a central incised line at base; eyes very large, obliquely elongate; face elongate, concavely sinuate at inner margin of eyes, narrowed to clypeus which is slender and moderately widened posteriorly; cheeks large and broad; pronotum about as long as either vertex or scutellum, anterior margin strongly subangularly produced between

Fig. 203.—*Pugla sigillaris.*

the eyes, sinuate behind eyes, lateral margins nearly straight, posterior margin a little concavely sinuate; scutellum broad, deeply impressed before apical area, apex shortly acute; legs moderately short, posterior tibiæ thickly spinulose; tegmina somewhat broad, passing apex of abdomen, four apical cells, the innermost largest.

2567. **Pugla sigillaris**, sp. n.

Vertex pale ochraceous at base, dark ochraceous at apex; eyes dark greyish with fuscous mottlings; pronotum pale ochraceous, with a transverse arcuate pale line on anterior disk and two dark ochraceous central longitudinal fasciæ; scutellum ochraceous, two oblique pale whitish lines on disk connected on apical margin enclosing a distinctly paler area centrally marked with a longitudinal brownish line, the lateral areas dark ochraceous outwardly margined with whitish; face pale ochraceous, the basal area darker, brownish-ochraceous, and spotted with whitish, the basal margin pale with two central black spots, at inner margins of eyes narrowly blackish; cheeks dark ochraceous; body beneath and legs ochraceous, the legs a little paler in hue; tegmina greyish-white, tinted with ochraceous in claval area, the veins ochraceous or brownish-ochraceous, some prominent whitish spots in claval and apical areas, the apical cells more or less hyaline and shaded with fuscous.

Length incl. tegm. 5 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus SOORTANA, nov.

Type, *S. simulata*, Dist.

Distribution. Ceylon.

Vertex somewhat long and narrow, much wider at apex than at base, its anterior margins almost in a line with the outer margins of the eyes, centrally carinate, discally foveate, lateral margins ridged, at base suddenly narrowed and terminating in a slender sulcate process; ocelli near anterior margin of vertex a little in front of eyes; eyes extremely large and oblique, slightly overlapping the anterior lateral angles of the pronotum; face elongate, narrow, lateral margins subparallel, basal margin a little conically produced; clypeus nearly half as long as face, truncate posteriorly; rostrum reaching the intermediate coxæ; pronotum transverse, very short, much shorter than either vertex or scutellum, its lateral margins strongly inwardly oblique; scutellum broadly subtriangular, strongly transversely impressed before apical area; legs somewhat robust, all the tarsi spinulose; tegmina moderately short and broad, not passing anal appendage, costal area broad, apical cells four.

2568. **Soortana simulata**, sp. n.

Vertex pale luteous, its anterior half, margins, and costal carination darker; eyes brownish-ochraceous; pronotum ochraceous, its anterior margin, particularly behind eyes, black; scutellum pale luteous; body beneath and legs ochraceous, apical area of abdomen and anal appendage black; tegmina piceous with many sanguineous spots, the spots on apical area more lunulate and ochraceous, base

of costal margin black, sometimes interrupted, costal area beyond middle ochraceous, crossed by obliquely transverse piceous spots or lines (these are inconstant, being sometimes spots, and in other specimens lines); pronotum somewhat coarsely granulose; scutellum smooth with a deep transverse impression; face elongate, flattened, the lateral margins obtusely ridged.

Length incl. tegm. 7 millim.

Hab. Ceylon; Kandy (*Green*).

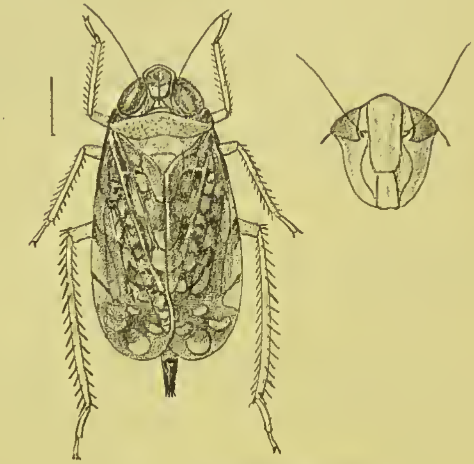

Fig. 204.—*Soortana simulata.*

In the colour and markings of the tegmina this species has a very considerable resemblance to *Jassus pulchellus*, Kirby; but without further information or field observation, there is no reason to apply the now somewhat loose term "mimicry."

Genus VARTA, nov.

Type, *V. rubrofasciata*, Dist.

Distribution. Bengal.

Vertex subtriangularly produced in front of eyes, the margins ridged, ocelli on anterior margin near apex; face very long and narrow, medially transversely indented, more than twice as long as clypeus; pronotum transverse, shorter than vertex, convexly angulately produced at anterior margin, lateral margins oblique; scutellum broadly subtriangular; tegmina a little longer than abdomen, apical cells four, the upper three preceded by three subapical cells in oblique series; wings somewhat large and ample.

2569. **Varta rubrofasciata**, sp. n.

Vertex, pronotum and scutellum pale virescent; vertex with two central longitudinal sanguineous fasciæ between which there is a slender dark line, the apical margin with four small piceous lines; pronotum with four and scutellum with two longitudinal sanguineous fasciæ; abdomen above and beneath black, the posterior segmental margins obscure virescent, the apex and anal appendix brownish-ochraceous, the posterior margin of the first with pale

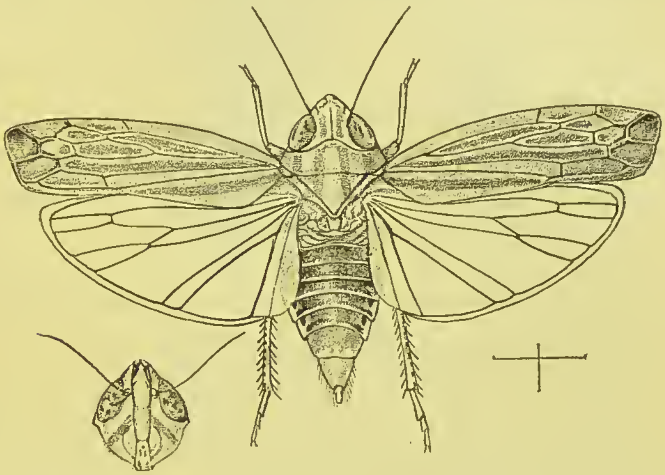

Fig. 205.—*Varta rubrofasciata.*

greyish spots; head beneath pale obscure virescent, on each side of face an oblique sanguineous fascia, base of face with angulate black linear markings; eyes darkly maculate; sternum and legs ochraceous, femora more or less streaked with black; tegmina pale virescent with longitudinal sanguineous fasciæ which do not extend through the apical area, the upper part of which contains some angulate piceous markings; wings hyaline.

Length excl. tegm. 5½; exp. tegm. 10½ millim.

Hab. Bengal; Pusa (*Lefroy*).

I only know this beautiful species by a single female specimen.

Division *JASSUSARIA*.

This division differs from the preceding, *Thagriaria*, by the non-laterally ridged and non-discally foveate or excavate vertex, the lateral margins of which are more or less obliquely basally narrowed at inner margins of eyes.

Synopsis of Genera.

A. Vertex more or less elongately produced in front of eyes.
  a. Vertex about or nearly twice as long as breadth between eyes; face narrow, elongate, more or less triangularly produced in front of eyes.
    a. Vertex centrally longitudinally carinate, the lateral margins sinuate .... DUSSANA, p. 322.
    b. Vertex not longitudinally carinate, the lateral margins obliquely straight........ DHARMMA, p. 323.
  b. Vertex a little longer than broad between eyes; face broad, not elongately produced in front of eyes .... SABIMA, p. 324.
B. Vertex not elongately produced in front of eyes.
  a. Face with the lateral margins broadly concavely sinuate before middle .... GULIGA, p. 326.
  b. Face with the lateral margins more or less convexly rounded.
    a. Vertex not longer than pronotum; scutellum longer than pronotum .... JASSUS, p. 327.
    b. Vertex longer than pronotum; scutellum not longer than pronotum .... ARYA, p. 338.
  c. Face somewhat sinuately narrowed to clypeus.
    a. Vertex broader than long; pronotum about three times broader than long, its posterior margin truncate .... KUNASIA, p. 339.
    b. Vertex about as long as broad; pronotum medially about half as long as broad, its posterior margin concavely sinuate ...... MYITTANA, p. 340.

Genus DUSSANA, nov.

Type, *D. quærenda*, Dist.

Distribution. Ceylon.

Vertex longer than pronotum, snbtriangular, centrally longitndinally carinate, the lateral margins ridged, apex narrowed and moderately npturned, ocelli not discernible; face moderately elongate, centrally longitudinally carinate; pronotnm narrowed anteriorly, centrally longitndinally carinate, transversely striate; scutellum transversely impressed before the apical area; tegmina somewhat slender, considerably passing the apex of the abdomen, apical cells fonr; legs moderately long and slender, posterior tibiæ finely spinnlose.

2570. **Dussana quærenda**, sp. n.

Black; a central longitudinal line to vertex, apical area of scutellnm, costal area of tegmina—neither reaching base nor apex and posteriorly broadened—two linear streaks on inner margin, the first and longest claval, and the second and shortest near apex

of clavus, legs, and abdomen beneath, stramineous; eyes fuscous-brown; vertex coarsely punctate, moderately foveate on each side of the central carination; face obscurely punctate; pronotum discally finely transversely striate, distinctly centrally longitudinally carinate; scutellum finely granulose on basal area,

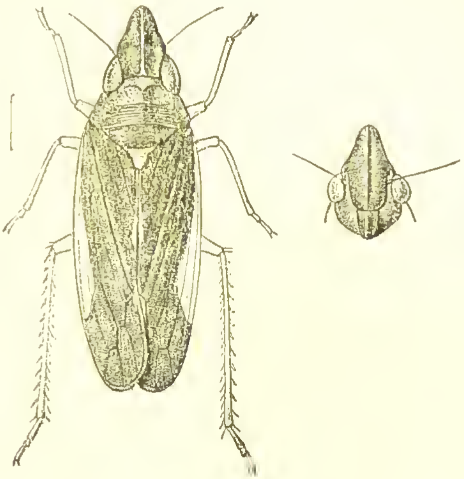

Fig. 206.—*Dussana quærenda.*

the pale apical area smooth; tegmina very finely and obscurely punctate; pronotum a little longer than scutellum, but considerably shorter than vertex.

Length incl. tegm. 6 millim.

Hab. Ceylon (*Green*).

Mr. E. E. Green kindly sent me a single specimen of this species, without precise locality, but labelled "ex Coll. J. P."

Genus **DHARMMA**, nov.

Type, *D. projecta*, Dist.

Distribution. Tenasserim.

Head angularly produced in front of eyes, vertex about twice as long as space between eyes, the lateral margins obliquely straight, transversely impressed near anterior margins of eyes; ocelli indistinguishable; face long, somewhat flattened; pronotum and scutellum of about equal length, the former with the anterior margin convex between the eyes, the posterior margin truncate; scutellum subtriangular; tegmina moderately long, their apices rounded, claval area long, apical veins four; legs moderately slender, posterior tibiæ thickly, somewhat longly spinulose.

2571. **Dharmma projecta**, sp. n.

Vertex, pronotum, scutellum and tegmina piceous, thickly spotted with ochraceous; vertex with a longitudinal fascia on anterior half, and the lateral margins irregularly in front of eyes, ochraceous; pronotum with a short central longitudinal carinate ochraceous line on the anterior half; tegmina a little more piceous on apical area, where there is a costal spot and an inner marginal spot at end of clavus, both ochraceous; face black, with a sub-

Fig. 207.—*Dharmma projecta.*

marginal ochraceous line on each side in front of eyes and which meet anteriorly; abdomen beneath pale ochraceous, the posterior segment black; legs brownish, the femora darker; the whole surface above is tessellately marked and coloured; the face is finely and obscurely transversely wrinkled.

Length ♀ 9 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus SABIMA, nov.

Type, *S. prima*, Dist.

Distribution. Assam, Tenasserim.

Vertex considerably longer than broad at base, obliquely angularly produced in front of eyes, obliquely narrowed posteriorly; eyes long and oblique; face broadly elongate, lateral margins a little sinuate, with an anterior submarginal angulate ridge; clypeus broad, obscurely centrally ridged; pronotum short, transverse, anterior margin sinuate behind eyes, posterior margin truncate; scutellum subtriangular, about as long as pronotum; tegmina

valvate behind clavus, transversely veined before apical area, apical margin rounded; legs simple; posterior tibiæ longly spinulose.

2572. **Sabima prima**, sp. n.

Vertex, pronotum and scutellum piceous thickly covered with small subgranulose ochraceous spots; face piceous, the posterior area spotted with ochraceous, the anterior submarginal ridge testaceous; body beneath and legs ochraceous, more or less mottled with piceous; tegmina dark greyish with reticulate piceous

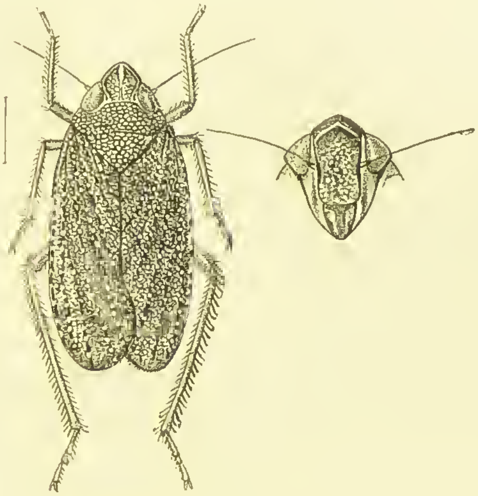

Fig. 208.—*Sabima prima.*

markings, veins piceous thickly spotted with bright yellow; vertex with a fine central longitudinal carination; pronotum with a central carination which does not reach the posterior margin; pale spots on scutellum larger than those on pronotum.

Length incl. tegm. ♀ 8 millim.

Hab. Assam; Margherita (*Atkinson Coll., Brit. Mus.*).

2573. **Sabima stellifera**, sp. n.

Vertex, pronotum, scutellum and tegmina piceous, thickly covered with small subgranulose ochraceous spots; face and clypeus black, the lateral margins very narrowly and somewhat obscurely ochraceous; body beneath and legs black; margins of meso- and metasterna, rostrum, apices of anterior and intermediate femora and tibiæ, the tarsi, and abdominal segmental margins more or less ochraceous; face with the anterior marginal area moderately granulose; vertex with a fine central longitudinal

carinate line and the lateral margins (not reaching apex) ochraceous; pronotum with a central carination which does not reach the posterior margin.

Length incl. tegm. 7 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Differs from *S. prima* in the uniformly black face and its more conically produced anterior margin.

Genus GULIGA, nov.

Type, *G. erebus*, Dist.

Distribution. Assam, Burma.

Differing from *Jassus* by the vertex being longer than broad and a little subconically produced in front of eyes; face moderately globose and distinctly laterally sinuate before middle; clypeus broad and centrally longitudinally carinate; vertex with a central longitudinal carination which does not reach apex; eyes large, oblique, extending over the anterior angles of the pronotum which is transverse and not longer than vertex; tegmina passing apex of abdomen, five apical cells; legs long and slender, posterior tibiæ thickly longly spinulose.

2574. Guliga erebus, sp. n.

Black, above finely speckled with flavescent; vertex with the lateral margins and central carination flavescent; legs black;

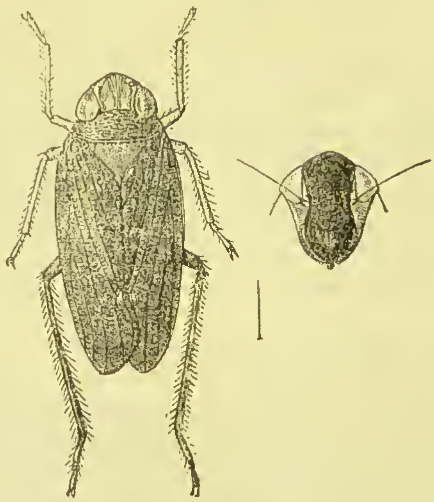

Fig. 209.—*Guliga erebus.*

anterior and intermediate legs with the apices of the femora and the whole of the tibiæ and tarsi flavescent, the tarsal claws black;

abdomen beneath with the segmental margins dull ochraceous; tegmina very finely palely speckled, excepting on apical area, where however the veins are more prominently palely maculate; vertex longer than broad, subconically produced in front of eyes, irregularly punctate; face a little depressed near anterior margin; pronotum very finely granulose; posterior tibiæ longly spinulose.

Length incl. tegm. 6½ millim.

Hab. Assam; Margherita (*Atkinson Coll.*, *Brit. Mus.*). Burma; Ruby Mines (*Doherty*).

Genus JASSUS.

Jassus, *Fabr. Syst. Rhyng.* p. 85 (1803); *Stål, Hem. Afr.* iv, p. 119 (1866); *id.* (part.) *Hem. Fabr.* ii, p. 78 (1869); *Spangb. Öfv. Vet.-Ak. Förh.* 1878, no. 8, p. 3; *Atkins. J. A. S. B.* liv, p. 110 (1885); *Van Duz. Tr. Am. Ent. Soc.* xix, p. 300 (1892).

Cœlidia, *Germ. Mag. Ent.* iv, p. 75 (1821); *Burm. Gen. Ins.* i, gen. 15 (1838).

Type, *J. nervosus*, Fabr., an American species.

Distribution. Widely and generally distributed.

"Body oblong, subcylindrical; head somewhat narrower than pronotum, anterior margin obtuse or very obtuse; vertex horizontal, a little narrower than the eyes, gradually somewhat forwardly ampliated; face dilated, more or less reclined; face occupying the greater part of the intraocular breadth, very slightly convex; clypeus apically produced and ampliated, truncated; ocelli situate on the apical margin of the head near the eyes; pronotum transverse, short, shorter than the scutellum; scutellum shorter than long, subequilateral, large; tegmina apically margined, valvate behind clavus, apical areas five; legs moderately long, posterior tibiæ very spinulose." (*Stål.*)

A. *Tegmina with the veins palely spotted.*

2575. **Jassus indicus**, *Walk.* (Cœlidia) *List Hom.* iii, p. 855 (1851).

Tettigonia jactans, *Walk. List Hom., Suppl.* p. 357 (1858).

Jassus deplanatus, *Spangb. Öfv. Vet.-Ak. Förh.* 1878, no. 8, p. 23; *Atkins. J. A. S. B.* liv, p. 111 (1885).

Sordidly yellowish-white; vertex, face and legs weakly subferruginous yellow; lateral margins of face broadly cinnabar-brown; pronotum and scutellum piceous, the former with dull pale flavescent granules; sternum and abdomen black, the former more or less spotted with flavescent, the segments of the latter posteriorly narrowly margined with ochraceous; tegmina dull pale flavescent, densely suffused with piceous or fuscous, the veins, particularly on apical area, spotted with fuscous, beyond the middle a subtriangular costal spot sordidly whitish, followed by a fuscous spot, apex more or less fuscous; the last segment of the abdomen in the ♀ almost twice as long as the penultimate; vertex with a narrow central carination.

Var. *a*. Agreeing with Walker's unique type here figured, but with the tegmina more universally spotted and less fasciately suffused with fuscous or piceous.

Var. *b*. Paler in hue, pronotum with the flavescent granules fused and giving the appearance of an ochraceous surface speckled with black; scutellum ochraceous with two costal and two basal angular black spots; tegmina with the typical pale costal spot.

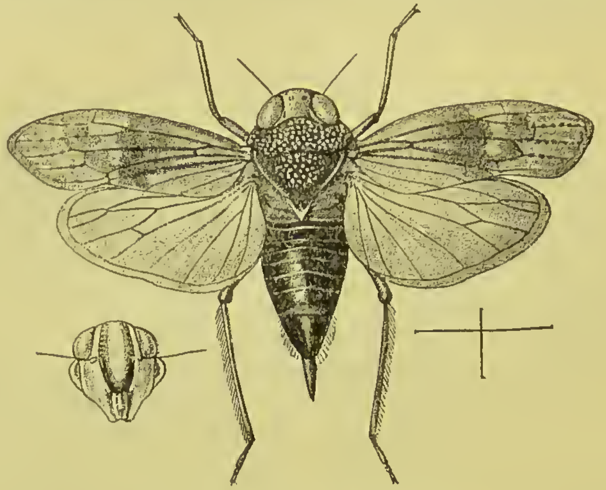

Fig. 210.—*Jassus indicus*.

Var. *c*. Resembling var. *a*, but tegmina without the pale costal spot, the ground-colour above is also paler and more ochraceous in hue.

Length incl. tegm. 7 to 8 millim.

Hab. "North India" (*Brit. Mus.*); Mussoorie; Bhim Tal, Kumaon (*Annandale, Ind. Mus.*). Bombay (*Brit. Mus.*); Bandra (*Jayakar, Brit. Mus.*) Burma; Ruby Mines (*Doherty*). Tenasserim; Myitta (*Doherty*).

I recognize this variable species in all its forms by the distinctive structure and coloration of the face, the margins of which are broadly cinnabar-brown.

2576. **Jassus maldivensis**, sp. n.

Vertex ochraceous, a little darkly speckled, the ocelli minutely blackish; pronotum and scutellum thickly granulosely ochraceous, the interstices here and there black, the scutellum transversely impressed before apical area which is uniformly ochraceous; face and clypeus ochraceous thickly speckled with black, the latter with two prominent pale spots near base, cheeks pale ochraceous; abdomen above brownish-ochraceous, the segmental margins paler, centrally and laterally macularly black; abdomen beneath not seen on typical carded specimen; legs ochraceous more or less linearly

striped with black; tegmina greyish-brown, thickly minutely spotted with fuscous-brown, more prominently so on veins, a small linear pale spot on costal margin beyond middle; vertex centrally finely longitudinally carinate, the lateral areas longitudinally wrinkled; pronotum moderately convex, suddenly depressed and transversely impressed before apical area; face narrow and elongate, much longer than broad, lateral margins subparallel.

Length incl. tegm. $7\frac{1}{2}$ millim.

Hab. Maldive Islands; Goidu (*Gardiner*).

2577. **Jassus elegans**, sp. n.

Vertex pale ochraceous with testaceous shadings, ocelli black; eyes greyish; pronotum testaceous thickly covered with pale ochraceous granules; scutellum ochraceous with a few scattered pale granules, on each lateral area a longitudinal black spot outwardly margined and inwardly irrorated with pale granules; face ochraceous; the lateral areas with short transverse testaceous striæ, a central white longitudinal fascia margined with piceous which is irrorated with small pale spots, apical halves of lateral margins black; cheeks and clypeus greyish-white, the latter with a central ochraceous line; body beneath and legs stramineous; lateral areas of meso- and metasterna, transverse fasciæ to abdomen beneath, and apices of posterior tibiæ black, the latter also finely spotted and inwardly margined with piceous; tegmina ochraceous with fine paler mottlings, the veins robust and prominently spotted with pale flavescent; vertex with a central fine carination on each side of which the surface is foveately depressed; face elongate, much longer than broad, the lateral margins near apex obliquely narrowed to clypeus; scutellum strongly transversely impressed before apical area.

Length incl. tegm. ♀ 9 millim.

Hab. Bombay (*Dixon*).

2578. **Jassus pectitus**, sp. n.

Vertex pale ochraceous with two rounded black spots near anterior margin; eyes greyish-brown; pronotum ochraceous, coarsely speckled with black, much more sparsely so behind eyes and on lateral margins; scutellum ochraceous thickly speckled with black, or sometimes with a transverse series of four black spots; head beneath pale ochraceous, the face and two longitudinal spots to clypeus black; basal aud anterior lateral margins to face pale ochraceous; rostrum, body beneath and legs pale ochraceous; small coxal spots, inner margins to posterior tibiæ, apices of posterior femora, tarsal claws and suffusions to posterior tarsi, black; abdomen above black, the base and segmental margins ochraceous; tegmina ochraceous, the veins, costal and apical margins black, veins spotted with ochraceous; vertex with a fine dark central longitudinal line; face elongate much longer than

broad, very finely, thickly and obscurely granulose; pronotum finely transversely granulose.

Length incl. tegm. ♀ 6½ millim.

Hab. Tenasserim; Myitta (*Doherty*).

Mr. Doherty sent me three female specimens of this species.

2579. **Jassus tenasserimensis**, sp. n.

Vertex pale ochraceous, the ocelli black, and with a black longitudinal central line between the eyes, which are greyish-brown; pronotum and scutellum piceous-brown, thickly covered with pale ochraceous granules; face pale ochraceous, narrow lateral transverse testaceous striæ on its anterior half, posterior area mottled with testaceous, posterior lateral and apical margins piceous; clypeus pale ochraceous, the apical lateral margins piceous; sternum and legs ochraceous, mesosternum with large black spots; abdomen beneath black, the segmental margins pale ochraceous; tegmina pale brownish-ochraceous, the veins darker, thickly spotted with pale ochraceous, six marginal pale spots, two on claval sutural margin, two beyond claval apex, one on apical margin and another on costal margin before apex; wings fuliginous; vertex broad, obliquely widened from base, with a very slender central carinate line which does not reach apex; face broad, a little longer than broad, slightly narrowed beyond eyes, its apex broad and roundly subtruncate.

Length incl. tegm. ♀ 6 millim.

Hab. Tenasserim; Myitta (*Doherty*).

2580. **Jassus cretatus**, sp. n.

Vertex pale ochraceous, a minute dark spot at inner margin of each eye and two similar anterior spots at the ocelli; pronotum and scutellum pale castaneous with greyish granulose spots, the first with its anterior margin cretaceous, the latter with the basal angles and apex greyish; head beneath ochraceous, face speckled with castaneous, its anterior margin of that colour and the lateral margins narrowly piceous; clypeus more slightly speckled with castaneous, the apical margin piceous, cheeks with two oblong castaneous spots; sternum and legs ochraceous, disk of prosternum black, meso- and metasterna spotted with cretaceous, abdomen beneath testaceous spotted with cretaceous, the lateral margins black; bases and apices of posterior tibiæ black; tegmina pale brownish-ochraceous, the veins greyish-white spotted with piceous, a prominent pale costal spot on apical area, clavus with the basal area ochraceous with a few castaneous spots, a cretaceous spot at apex of claval vein and a pale spot at apex; vertex with a very fine central dark carination; face a little longer than broad, the lateral margins sinuate behind eyes.

Length incl. tegm. ♀ 8 millim.

Hab. Tenasserim; Myitta (*Doherty*).

B. *Tegmina with the veins unspotted, or practically unspotted* *.

a. *Tegmina unicolorous, unspotted.*

2581. **Jassus atkinsoni**, sp. n.

Vertex and eyes yellowish; head beneath yellowish, the face testaceous-red laterally margined very narrowly with black; pronotum black, somewhat thickly covered with small flavescent granules, its anterior margin black; scutellum fuscous-brown, with a large black spot at each basal angle and some small scattered black spots on disk; sternum and abdomen black, the segmental margins to both sternum and abdomen, some sternal spots and the legs ochraceous; tegmina very pale brownish-ochraceous, the veins darker and covered with small pale spots; wings pale fuscous-brown; vertex with a central longitudinal carination; posterior tibiæ inwardly margined with piceous, the spinules brownish; face elongate, much longer than broad, the lateral margins subparallel.

Var. Face uniformly testaceous-red, not margined with black; abdominal segmental margins dull greyish.

Length incl. tegm. ♀ 10 millim.

Hab. Assam; Margherita (*Atkins. Coll., Brit. Mus.*). Ceylon; Maskeliya (*Green*).

The type is from Assam, the variety from Ceylon.

2582. **Jassus silvestris**, sp. n.

Vertex ochraceous, eyes and ocelli black; pronotum and scutellum dark bluish-green, narrow posterior margin of the first and the apical area of the latter ochraceous; abdomen above dull ochraceous-green, the anal segment piceous; body beneath and legs ochraceous; face (excluding basal and apical margins), large sternal spots and apex of anal segment, bluish-green; tegmina lurid bronzy-ochraceous, transverse veins at bases of apical areas and the apical margins pale fuliginous; wings a little infuscate; posterior femora and tibiæ longitudinally streaked with bluish-green; pronotum finely transversely wrinkled; vertex finely centrally longitudinally ridged; face elongate, longer than broad, its anterior lateral margins strongly transversely ridged.

Length excl. tegm. ♀ 6; exp. tegm. 16 millim.

Hab. Ceylon; Peradeniya (*Green*).

2583. **Jassus luridus**, *Melich. Hom. Faun. Ceylon*, p. 179 (1903).

"Small, wholly pale or light rusty-yellow; pronotum leather-like, wrinkled; two red spots on the vertex; ocelli blackish; tegmina unicolorous, apical margin bordered with brownish and with a browner marginal spot on the outer side; body beneath and legs unicolorous; back piceous." (*Melichar.*)

"Length ♀ 6 millim."

Hab. Ceylon (*fide Melichar*).

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* In *J. opulentus* (2590) the veins are spotted, but then the tegmina are transversely maculate or fasciate.

I have not seen this species but it is evidently allied to the preceding *J. silvestris,* from which it differs by its concolorous pronotum and scutellum.

b. *Tegmina black with the costal margin ochraceous.*

2584. **Jassus pauperculus,** *Spangb. Öfv. Vet.-Ak. Förh.* 1878, no. 8, p. 35; *Melich. Hom. Faun. Ceylon,* p. 177 (1903).
Var. bilineatus, *Melich. Hom. Faun. Ceylon,* p. 178 (1903).
Tettigonia frontalis, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 169 (1891); *Melich. Hom. Faun. Ceylon,* p. 156 (1903).
Jassus fuscus, *Melich. Hom. Faun. Ceylon,* p. 179 (1903).

Vertex and head beneath yellow; eyes black; face black with the lateral margins in front of the antennæ yellow, its anterior margin reddish; clypeus black, a central line and apex yellow; pronotum and scutellum black, the latter with its apex greyish; tegmina black, costal margin (more broadly beyond middle) and narrow posterior claval margins ochraceous, apices brownish-ochraceous; body beneath black, spots to sternum, abdominal segmental margins and the legs, ochraceous; vertex centrally carinate; pronotum granulose.

Length incl. tegm. 6 to 9 millim.

Hab. Ceylon; Pundaluoya (*Green, Brit. Mus.*), Maskeliya, Dambool, Kandy (*Green, Coll. Dist.*).

A variable species; in some specimens the face is black, margined as described above; in others the face is yellow posteriorly margined with black, and sometimes with a central longitudinal line of that colour. The sternum is either black spotted with ochraceous as described above, or with the prevalent colour reversed, viz., yellow with black spots.

2585. **Jassus nocturnus,** sp. n.

Black or dark bluish-black; vertex, eyes, head beneath, sternal and abdominal segmental margins, coxæ, legs, very narrow posterior margin to pronotum, broad costal, and narrow inner margin to tegmina, ochraceous; vertex centrally longitudinally carinate; pronotum and scutellum finely granulose; face margined with black beyond middle.

Var. *a.* Face and clypeus black; tegmina more or less fuscous brown between the black veins.

Var. *b.* Head beneath (including face and clypeus) uniformly ochraceous, without black markings.

Length incl. tegm. 7½ to 10 millim.

Hab. Assam; Margherita (*Atkins. Coll., Brit. Mus.*); Nilgiri Hills (*Hampson*).

In some specimens the vertex is more or less suffused with black at its anterior area, in others there are only two small black spots on the anterior margin.

Allied to the preceding species *J. pauperculus*, but with the face more suddenly angulated to clypeus, vertex more inwardly

Fig. 211.—*Jassus nocturnus.*

narrowed at base, eyes ochraceous, costal margin of tegmina ochraceous from base.

c. *Tegmina more or less palely spotted.*

2586. **Jassus pulchellus,** *Kirby* (Tettigonia), *J. Linn. Soc., Zool.* xxiv, p. 170, t. vi, f. 13 (1891); *Melich.* (Jassus) *Hom. Faun. Ceylon,* p. 178 (1903).

" Vertex (except a red band behind the black ocelli and the red occipital ridge) and pronotum dirty yellow, the latter mottled with brown ; scutellum forming a sharply-defined equilateral triangle ; abdomen bright yellow at the base with black markings and black at the extremity; anal appendages bordered with red ; under surface and legs yellowish; extremity of abdomen and a line on the hind tibiæ black ; tegmina light yellowish-brown, with pale pink spots and streaks bordered with black, largest and palest on the costa and inner margin ; on the costa there are five blotches, the third, fourth and fifth largest and crossing the costal area, but all separated by small black spaces on the costa, towards the base the spotting is confused, but from the second, fourth and fifth spots rows of about five spots (including those on the costa and inner margin) cross the tegmina, the middle spot being linear, or at least longer than the others, nearer the hind margin is another row of four spots alternately linear and lunular, and

nearest the apex is an incomplete ring, broken on the basal side; wings light brown, with alternating lighter and darker bands." (*Kirby.*)

Vertex broader at apex than at base, centrally finely carinate;

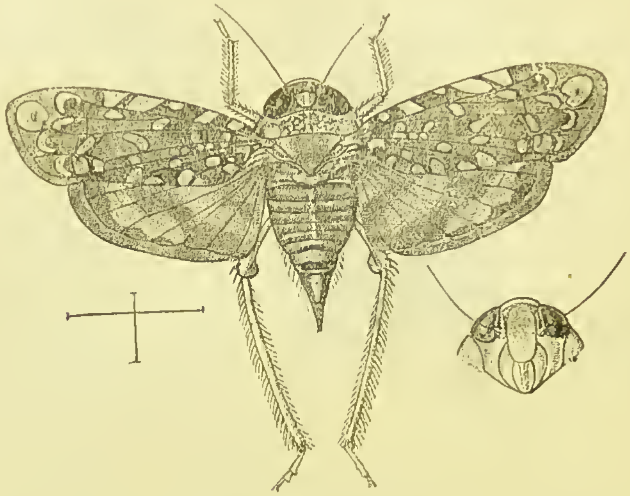

Fig. 212.—*Jassus pulchellus.*

face much longer than broad, a little rounded and narrowed to clypeus.

Length excl. tegm. ♂ & ♀ 5 to 6; exp. tegm. 12 to 14 millim.

Hab. Ceylon; Udagama, Maskeliya, Hantane (*Green*), Haputale (*fide Melichar*).

2587. **Jassus roratus**, sp. n.

Vertex pale stramineous, two small black spots narrowly surrounded with testaceous at anterior margin and a central raised longitudinal line also testaceous; eyes greyish-brown; face and clypeus stramineous, the first with dark striate lines on each side of basal area, the posterior margins and a posterior central longitudinal fascia black; clypeus with the margins black; pronotum ochraceous speckled with black, the black speckles sometimes forming two broad longitudinal fasciæ; scutellum sometimes black with an apical and two discal curved ochraceous spots, or ochraceous with three large basal and two curved fuscous apical spots, or ochraceous with two basal and a central linear fuscous spot; body beneath piceous, spots to sternum, abdominal base and abdominal segmental margins ochraceous; legs ochraceous, more or less spotted or suffused with fuscous; tegmina ochraceous, the clavus, veins, large spots on costal area and a large spot at inner

apical area piceous, on clavus and disk a number of irregular stramineous spots; pronotum finely granulose; scutellum transversely impressed before apical area; face not much longer than broad, narrower at apex than at base; clypeus broad.

Length incl. tegm. ♀ 6 to 6½ millim.

Hab. Tenasserim; Myitta (*Doherty*).

I possess four female specimens of this species.

2588. **Jassus sulphureus**, sp. n.

Body, legs and tegmina sulphur-yellow; wings pale fuliginous; apices of posterior tibiæ black; tegmina with two large piceous spots on apical half of costal area, the apex more or less suffused with pale fuscous; vertex broad, narrowed at base, longer than breadth between eyes at base, centrally broadly ridged, the ridge centrally divided by a longitudinal deeply impressed line, its lateral margins sinuately ridged; pronotum with a central longitudinal carination; scutellum transversely impressed before apical area; face moderately flattened, smooth, considerably longer than broad, the lateral margins very shortly and a little darkly transversely ridged.

Length excl. tegm. ♂ 5; exp. tegm. 14 millim.

Hab. Assam; Khási Hills (*Brit. Mus.*).

2589. **Jassus rutatus**, sp. n.

Vertex ochraceous, ocelli black and with two discal sanguineous spots between eyes; head beneath ochraceous, face with the

Fig. 213.—*Jassus rutatus.*

anterior and posterior margins and an ill-defined transverse fascia between the eyes sanguineous; clypeus with a piceous spot at apex;

prouotum subcastaneous, darker at the lateral angles; scutellum ochraceous; abdomen above ochraceous, centrally and laterally pale fuscous; body beueath and legs ochraceous, posterior coxæ spotted with piceous; tegmina pale ochraceous mottled with fuscous, the paler areas being the apical margin, a costal spot beyond middle aud a large subtriangular spot crossing apical area of clavus; wiugs pale fuliginous, the veins darker; vertex longitudinally centrally carinate; pronotum finely granulose; face a little longer than broad, lateral margius rounded and narrowed to clypeus, finely and obscurely punctate.

Length excl. tegm. ♀ 7; exp. tegm. 15 millim.

Hab. Burma; Ruby Miues (*Doherty*).

d. *Tegmina transversely maculate or fasciate.*

2590. **Jassus opulentus**, sp. n.

Vertex ochraceous, the ocelli black; face with the anterior area ochraceous, the posterior area piceous obscurely speckled with ochraceous; pronotum ochraceous speckled with black, a series of small distinct black spots on anterior margin; scutellum black with ochraceous markings; body beneath black, sternal and abdominal segmental margins ochraceous; legs piceous, anterior and intermediate tibiæ, apices of posterior tibiæ and the tarsi ochraceous,

Fig. 214.—*Jassus opulentus.*

tarsal claws piceous; tegmina piceous, the veins very prominently spotted with yellow, two irregular broken trausverse series of whitish spots and a similarly coloured spot at basc of clavus; vertex with a fine central longitudiual carination; pronotum

sparingly granulose; scutellum with a transverse impression before apex; face much longer than broad, the lateral margins moderately rounded.

Length incl. tegm. 8 to 9 millim.

Hab. Burma; Karen Hills (*Doherty*).

2591. **Jassus percultus**, sp. n.

Vertex dull ochraceous, with two small piceous spots near anterior margin and similar spots placed closer together near basal margin; eyes piceous-brown; pronotum stramineous, basal margin narrowly piceous; scutellum black; face and clypeus black, cheeks black with an ochraceous spot on each side of face beneath eyes; body beneath and legs black; disk of sternum, rostrum, base of abdomen beneath and the segmental margins, anterior and intermediate tibiæ (excluding base), apices of posterior tibiæ and the tarsi, ochraceous; tegmina black, crossed by a transverse fascia near apex of scutellum, a transverse fascia crossing apex of clavus and widened largely and subtriangularly from middle to costal margin (in a second specimen this fascia is centrally broken), and the apical margins, stramineous; vertex with a central longitudinal impressed line, the margins of which are carinate; pronotum finely granulose; scutellum transversely impressed before apical area; face elongate, flattened, much longer than broad, the lateral margins subparallel, narrowly transversely ridged on each lateral margin.

Length incl. tegm. ♀ 7 millim.

Hab. Burma; Karen Hills (*Doherty*).

2592. **Jassus karenensis**, sp. n.

Vertex, pronotum and scutellum pale umber-brown; eyes piceous; pronotum speckled with paler spots; scutellum a little darker in hue; face and clypeus umber-brown, their margins narrowly ochraceous, and the first with a central longitudinal ochraceous line; cheeks and apex of clypeus ochraceous; body beneath and legs ochraceous, a spot on anterior coxæ, a large spot on each side of meso- and metasterna, and the apices of the femora black; tegmina umber-brown, crossed a little beyond apex of scutellum by a narrow transverse macular fascia, a small spot near apex of clavus and a large costal spot beyond middle which extends halfway across tegmen, greyish-white; vertex with a central longitudinal impressed line, the margins of which are slightly carinate; pronotum somewhat coarsely granulose; scutellum very finely wrinkled, transversely impressed before apical area; face elongate, moderately flattened, much longer than broad, lateral margins slightly rounded, narrowly and obscurely ridged on lateral margins.

Length incl. tegm. ♀ 9 millim.

Hab. Burma; Karen Hills (*Doherty*).

2593. **Jassus prætextus**, sp. n.

Vertex ochraceous, the ocelli black, an ochraceous spot at base behind each eye; eyes piceous; pronotum brownish-ochraceous, thickly covered with small and rather obscure paler granules; scutellum piceous, speckled with ochraceous, its apex ochraceous; face black, its basal margin and lateral and apical margins (more or less) reddish-ochraceous; clypeus black, its apex and lateral margins ochraceous, and with a reddish-ochraceous central longitudinal line; sternum and abdomen beneath piceous, abdominal segmental margins narrowly ochraceous; legs dark ochraceous linearly streaked with piceous; tegmina pale brownish-ochraceous, a greyish-white transverse fascia crossing tegmen at about one-third from base, and a large costal spot of the same colour at about one-third from apex, costal and apical margins narrowly piceous; face rather broad, longer than broad, lateral margins subparallel; vertex considerably narrowed towards base; scutellum strongly transversely impressed before apical area, which is finely transversely striate.

Length incl. tegm. ♀ 8 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus **ARYA**, nov.

Type, *A. rubrolineata*, Dist.

Distribution. Bengal.

Vertex a little longer than breadth between eyes, subconically rounded in front; eyes large, oblique, ocelli on anterior margin near eyes; face narrowed to clypeus which is about half as long as face; pronotum very slightly shorter than vertex, oblique on each side behind eyes, posterior margin truncate; scutellum subtriangular; posterior tibiæ longly spinulose; tegmina longer than abdomen, the veins prominent, apical cells four, a transverse vein defining radial area and a transverse vein before apical area defining an anteapical cell.

2594. **Arya rubrolineata**, sp. n.

Vertex pale greenish-yellow, crossed before eyes by a sanguineous fascia which is medially interrupted; two oblique dark spots near base on each side of a medial line which is darkened posteriorly; pronotum and scutellum pale virescent, the first with three pale lines which are usually very indistinct, and the second with a transverse pale discal line united medially with base; abdomen above and beneath bright orange-yellow; head beneath, sternum and legs pale yellowish-grey; tegmina pale ochraceous with the veins greyish-white (when the tegmina are unexpanded they reflect the orange-yellow abdomen beneath,

which appears between the veins and gives the appearance of pale testaceous longitudinal fasciæ) ; wings pale hyaline.

Length excl. tegm. 4 ; exp. tegm. 9 millim.

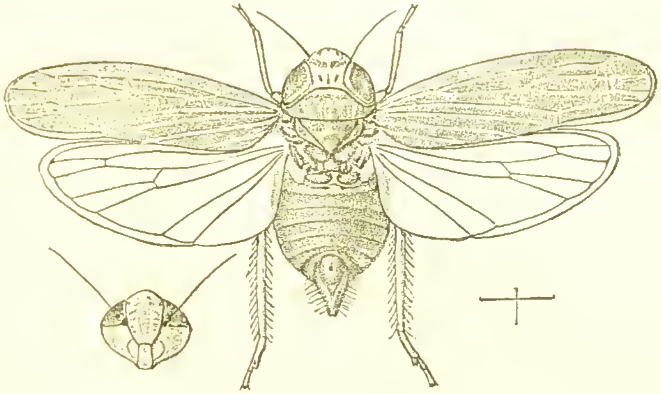

Fig. 215.—*Arya rubrolineata.*

Hab. Calcutta, Barrackpore (*Annandale, Ind. Mus. & Coll. Dist.*).

Genus **KUNASIA**, nov.

Type, *K. nivosa*, Dist.

Distribution. Tenasserim.

Vertex short, broad, rounded in front, much shorter than breadth between eyes, with a fine central longitudinal ridge ; face long and broad, almost as long as broad, narrowed from eyes to clypeus, which is very broad and with a lobate process on each side, centrally longitudinally carinate, apically transversely sinuate ; pronotum short and broad, nearly three times broader than long, the posterior margin truncate, the lateral margins subconvexly ampliated ; scutellum subtriangular, broader at base than long, transversely impressed before apical area : tegmina somewhat short and broad, longer than abdomen, costal and apical margins a little rounded, apical cells four.

2595. **Kunasia nivosa**, sp. n.

Vertex, pronotum and scutellum pale brownish-ochraceous ; pronotum with four elongate brownish spots on anterior area and four lunulate spots margined with piceous on basal margin ; face and clypeus ochraceous, the first with a central piceous line which does not reach apex and with a transverse whitish line between the eyes ; clypeus with a pale piceous spot on each lateral area ; body beneath pale ochraceous ; metasternum with a large piceous spot on each side ; legs reddish-ochraceous, more or less

longitudinally streaked with piceous; tegmina pale brownish, with numerous rounded pale cretaceous spots, a very large costal patch or spot of the same colour beyond middle, a fuscous spot in each apical cell; face very little longer than broad; pronotal

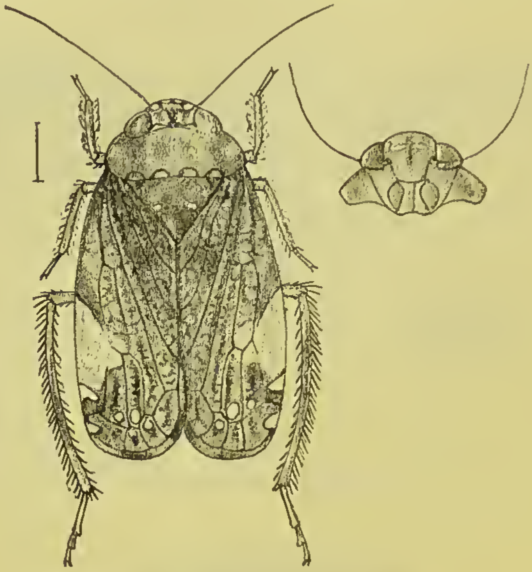

Fig. 216—*Kunasia nivosa.*

lateral margins moderately dilated; scutellum transversely impressed before apical area, a whitish spot on each side of the impression.

Length incl. tegm. 6 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus MYITTANA, nov.

Type, *M. dohertyi*, Dist.

Distribution. Tenasserim.

Vertex narrow, about as long as broad; ocelli indistinct, on anterior margin in front of eyes; eyes very large, transversely oblique, extending over the anterior margin of the pronotum; face narrow, concavely emarginate on each side before eyes; clypeus about half the length of face; pronotum longer than vertex, medially about half as long as broad, discally convexly arched, anterior margin convexly rounded, posterior margin concavely sinuate; scutellum small, subtriangular; tegmina hyaline, longer than abdomen, two discal transverse veins on basal area, apical cells four; posterior tibiæ longly spinulose.

2596. **Myittana dohertyi**, sp. n.

Vertex piceous with two rounded spots near base, the ocelli and a central apical spot ochraceous; pronotum and scutellum

pale ochraceous, each with a broad central piceous-brown fascia, the first containing a central longitudinal line and two small anterior spots pale ochraceous; tegmina hyaline with a pale ochraceous tint, inner claval area, apical marginal area and a spot near apex of

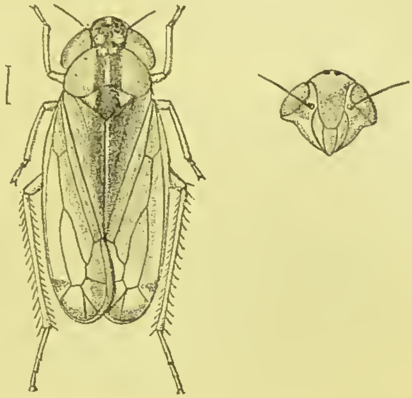

Fig. 217.—*Myittana dohertyi.*

costal margin more or less fuscous; body beneath and legs pale ochraceous; anterior margin of face exhibiting two dark spots; scutellum with a moderate transverse impression before apical area and just before this impression two minute tubercles.

Length $4\frac{1}{2}$ millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus PLACIDUS, nov.

Type, *P. hornei*, Dist.

Distribution. N.W. India.

Vertex longer than broad at base between eyes, somewhat flat, strongly rounded in front of eyes; ocelli distinct, situate on anterior margin a little in front of eyes, visible both above and beneath; face considerably longer than broad, its lateral margins sinuate; clypeus small, narrowing to apex; cheeks narrow, longer than broad, their lateral margins subangulate, their posterior margins oblique; pronotum broad, obliquely narrowed from base, anterior margin truncate, posterior margin a little concave before scutellum, the disk arched, the lateral areas deflected on each side; scutellum large, the apex shortly finely produced, arched, lateral margins a little shorter than basal; legs robust, femora moderately incrassated, anterior and intermediate legs distinctly spinulose, posterior tibiæ long, strongly and longly spinulose; anterior coxæ longly spinose; tegmina broad, hyaline, considerably longer than abdomen, apical cells four, costal cell in type with two transverse veins on one tegmen and only one on

the other, two long anteapical cells, short discal transverse veins on basal area.

This genus apparently indicates the type of a new division, the robustly spined anterior coxæ and the length of the posterior tibiæ proving characters not readily admissible in a previous division.

2597. **Placidus hornei**, sp. n.

Vertex black, the ocelli and two large basal spots ochraceous; pronotum black, the lateral margins broadly ochraceous, the disk more or less mottled with duller ochraceous; scutellum black, the apex, a spot at middle and a line at base of each lateral margin pale ochraceous; face black, clypeus testaceous, cheeks black, lateral margins of face and cheeks ochraceous; body beneath black, abdominal segmental margins narrowly testaceous; legs ochraceous,

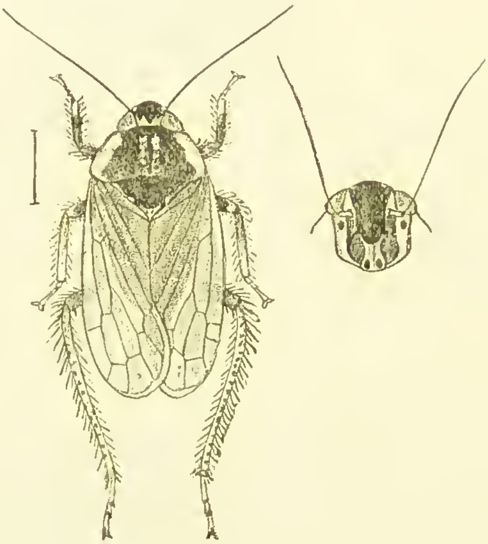

Fig. 218.—*Placidus hornei.*

more or less longitudinally broadly streaked with black, the tibiæ less but more basally so; tegmina hyaline, reflecting the darker abdomen beneath, the veins yellow; body above shortly finely pilose; antennæ long and slender; face somewhat globose; anterior coxæ armed with four long spines.

Length incl. tegm. ♀ 8 millim.

Hab. N.W. Provinces of India (*C. Horne*, *Brit. Mus.*).

Division *ATHYSANUSARIA*.

Athysanini, *Van Duzée* (part.), *Tr. Am. Ent. Soc.* xix, p. 299 (1892).

"Elytra with a series (generally three) of anteapical areoles. Outer branch of the first sector of the elytra with two forks evident." (*Van Duzée.*)

Vertex only half as long, or less than half as long, as breadth between eyes; face not longer than broad at base.

Synopsis of Genera.

A. Tegmina longer than abdomen, apically narrowed to a more or less acute point, mostly reticulated with ramose, fine brown pigment .... PHLEPSIUS, p. 346.

B. Tegmina short, seldom exceeding the abdomen in length, broadly rounded at apices, neither reticulated nor ramosely shaded with brown .... ATHYSANUS, p. 343.

Genus ATHYSANUS.

Athysanus, *Burm. Gen. Ins.* i, t. xiv, subg. 2 (1840); *Edw. Tr. E. S.* 1888, p. 35; *Van Duzée, Tr. Am. Ent. Soc.* xix, p. 299 (1892); *Melich. Hom. Faun. Ceylon,* p. 182 (1903).

Type, *A. argentatus*, Fabr., a Palæarctic species.

Distribution. Generally distributed.

"Body robust, somewhat rounded at the sides; head with the eyes somewhat wider than the pronotum, obtuse in front, crown obtusely produced, convex above, ocelli near the eyes; frons wide, somewhat convex; clypeus wide, its base distinctly wider than the base of the lora; cheeks wide, reaching to the apex of the clypeus; pronotum short, transverse, its sides not or only faintly margined; elytra subcoriaceous, not overlapping at the apex, sides slightly rounded; five subapical areas, appendix wanting or extremely narrow, generally somewhat or even much shorter than the abdomen, with very short apical areas, but occasionally longer than the abdomen, with the apical areas fully developed, in which case the elytra overlap somewhat at the apex, owing to the development of the appendix; wings frequently much abbreviated." (*Edwards.*)

"Elytra short without an appendix, rarely exceeding the abdomen in length; front broad, width at the ocelli and the length equal, or the former the greater; vertex convex, more or less angled before, or prominent and tumid with the apex and edge rounded." (*Van Duzée.*)

2598. **Athysanus fusconervosus,** *Motsch. Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 97 (1863); *Melich. Hom. Faun. Ceylon,* p. 183 (1903).

Vertex of head ochraceous with a black curved transverse fascia between the eyes, this fascia connected with the base by a central longitudinal line, two small spots at apex (sometimes absent); head beneath ochraceous, face with a central black line (sometimes indiscernible) and with short dark lateral transverse striæ; pronotum greyish with the anterior and lateral margins ochraceous; scutellum ochraceous, the basal angles and a central basal spot

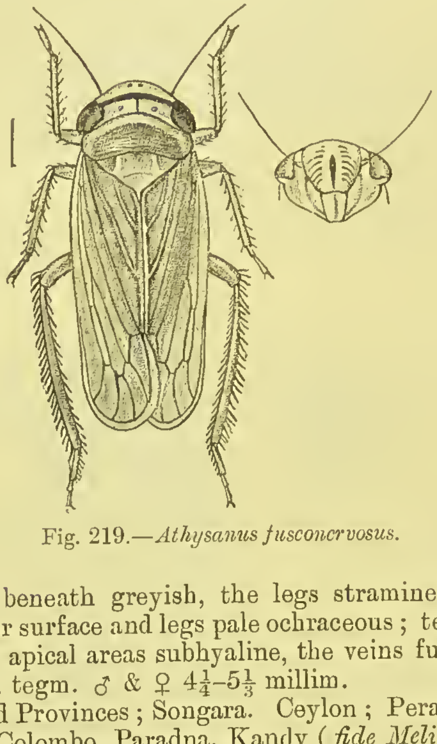

Fig. 219.—*Athysanus fusconervosus.*

greyish; body beneath greyish, the legs stramineous, sometimes the whole under surface and legs pale ochraceous; tegmina greyish, the lateral and apical areas subhyaline, the veins fuscous.

Length incl. tegm. ♂ & ♀ $4\frac{1}{4}$–$5\frac{1}{3}$ millim.

Hab. United Provinces; Songara. Ceylon; Peradeniya (*Green*), Henaratgoda, Colombo, Paradna, Kandy (*fide Melichar*).

A typical Ceylonese specimen is figured above.

2599. **Athysanus indicus,** sp. n.

Vertex ochraceous, a transverse black fascia between the eyes; pronotum ochraceous, the posterior disk dark greyish, an arcuate impressed line near the anterior margin on which are more or less distinct brownish or piceous dots; scutellum ochraceous; face with transverse brown striæ on each lateral area; femora with longitudinal linear brownish streaks; tegmina greyish subhyaline, here and there suffused with pale dull ochraceous, the veins pale

brownish; vertex subangularly rounded in front, between the black transverse fascia and base a more or less distinct central longitudinal line; scutellum slightly granulose on basal area, transversely impressed before apical area which is somewhat closely wrinkled; face centrally moderately flattened and indistinctly finely granulose, this area widening towards clypeus.

Length incl. tegm. 4 to 5 millim.

Hab. Calcutta (*Brit. Mus.*). Nepal Terai; Chutri Gouri (*Ind. Mus.*). Bengal; Pusa and Palamau (*Lefroy*).

Smaller than *A. fusconervosus*, vertex more angulate anteriorly, and without the longitudinal black line to the face as in Motschoulsky's species.

2600. **Athysanus atkinsoni**, sp. n.

Vertex ochraceous, an arcuated transverse black fascia between the eyes and a black spot on each side of apical margin; pronotum ochraceous, the posterior discal area greyish, with an arcuated series of linear transverse black spots before anterior margin commencing on lateral margins behind eyes; scutellum ochraceous, a somewhat large subtriangular black spot near each basal angle and two small central oblique black linear spots on disk; body beneath and legs pale ochraceous, sternum with large black spots, femora with longitudinal series of small brownish spots; face with brown striations on each side; tegmina subhyaline, with opalescent and ochraceous reflections; veins ochraceous; vertex subangularly rounded in front, between the black transverse fascia and base a central dark longitudinal line; pronotum indistinctly transversely wrinkled; scutellum depressed to apical area before which there is a transverse impression, the apical area indistinctly wrinkled; face with the central area flattened and obscurely finely granulose, this area widening from base to clypeus.

Length incl. tegm. ♀ 4 to $5\frac{1}{2}$ millim.

Hab. Calcutta (*Atkinson Coll.*, *Brit. Mus.*). Bengal; Pusa (*Lefroy*). Ceylon; Peradeniya (*Green*).

2601. **Athysanus nanus**, sp. n.

Vertex dull ochraceous, a slender arcuate piceous line between the eyes; pronotum (excepting the anterior and lateral margins) dull greyish, two small piceous spots on each side near anterior margin behind the eyes; scutellum ochraceous, a rounded black spot on each side of basal margin near the basal angles; body beneath and legs pale ochraceous, usually with a piceous spot near the intermediate coxæ; tegmina subhyaline with opalescent and ochraceous suffusions, veins ochraceous; vertex short, broad, convexly rounded in front, between the transverse piceous line and base a central longitudinal dark line; pronotum finely punctate

except on margins, a central longitudinal fascia and an arcuate line before anterior margin; scutellum depressed to apical area before which there is a transverse impression; face with a narrow longitudinal flattened impression, the lateral areas brownly striate.

Var. *a*. Vertex between the transverse line and base pale castaneous-brown.

Var. *b*. Pronotum with two spots behind middle of anterior margin, thus forming a transverse series of six spots.

Length incl. tegm. 4 to 5 millim.

Hab. Calcutta (*Atkinson Coll.*, *Brit. Mus.*). Simla Hills; Mantiana. Bengal; Pusa (*Lefroy*). United Provinces; Bignur.

Genus PHLEPSIUS.

Phlepsius, *Fieb. Verh. zool.-bot. Ges. Wien*, xvi, p. 503 (1866); *id. Rev. Mag. Zool.* 1875, p. 409; *Matsum. Termész. Füzetek*, 1902, p. 382.
Allygus, *Uhler, Stand. Nat. Hist.* ii, p. 245 (1884).
Parallygus, *Melich. Hom. Faun. Ceylon*, p. 179 (1903).

Type, *P. intricatus*, Herr.-Schäff., a Palæarctic species.

Distribution. Nearctic, Palæarctic and Oriental Regions.

"Veins in clavus and sectors in corium connected by more or less shortened and partly complete transverse veins, uniformly speckled, only the upper inner fork of the sector connected with the inner simple sector by a transverse vein; pronotum towards front triangular, hind margin gently waved, vertex and front corner of pronotum beneath almost obtusely right-angled, sides of shoulders rounded; front a symmetrical hexagon, above broader, the broad cheeks projecting below in very obtuse angles; face somewhat long, pentagonal, above broad, short-sided, flatly arched with the vertex forming an obtuse corner under less than a right angle, face straight linearly oblique to antennal cavities; clypeus somewhat long, trapeziform, widened below; eyes transversely oval, at inner margins towards antennal cavities waved." (*Fieber.*)

The species here enumerated under *Phlepsius* have the anterior margin of the pronotum more convex and less triangular than is typical, but I cannot find any other character to exclude them from Fieber's genus.

2602. **Phlepsius divaricatus**, *Melich.* (Parallygus) *Hom. Faun. Ceylon*, p. 179, t. v, f. 7 *a*, *b* (1903).

"Brownish-yellow; on the margin of vertex four black spots, of which the two inner ones are at the tip, and sometimes connected with a very small angulated spot, the lateral spots contiguous to the ocelli; face yellowish without markings; pronotum marbled with brown, a black longitudinal streak on the sides; scutellum

with several dark longitudinal streaks which form the borders of the usual basal triangles, two dots before the impressed transverse line and two marginal spots before the tip; tegmina brownish-yellow, with brown not very strong veins, the apical part spotted

Fig. 220.—*Phlepsius divaricatus.*

with brown, sometimes with indistinct longitudinal spots in the cells; wings smoky brown; pectus, abdomen and legs brownish-yellow; back black." (*Melichar.*) (Described from a single ♂ specimen.)

This is a variable species; in the ♂ specimen here figured the four anterior spots to the vertex are fused; in some specimens the scutellum is as described and figured by Melichar, in others the basal angles are filled in and dark; in all the specimens I have examined there are three dark spots on each claval sutural margin (as in the figure, *supra*) but sometimes these spots are very indistinct.

Length incl. tegm. ♂ & ♀ $6\frac{1}{2}$ to 7 millim.

Hab. Ceylon; Maskeliya (*Green*).

2603. **Phlepsius plumbeus**, sp. n.

Vertex pale greyish-white, two piceous spots at base nearer eyes than to each other and four minute testaceous spots of which two are central and two wider apart on anterior margin, a minute central piceous spot at middle of anterior margin and a short longitudinal central piceous line on basal margin; pronotum dark shining fuscous-brown mottled with ochraceous, the most prominent pale markings being two central spots near anterior margin between which there is a longitudinal line which reaches disk,

each lateral marginal area being also more or less pale ochraceous; scutellum very pale ochraceous with a large fuscous spot near each basal angle; face very pale yellowish-white, its posterior margins ochraceous, cheeks more ochraceous with their lateral margins dark plumbeous; clypeus ochraceous with an apical piceous spot; body beneath and legs plumbeous, the anterior and intermediate tibiæ and tarsi pale stramineous, posterior tibiæ plumbeous palely spotted, the posterior tarsi pale ochraceous with the apices of the joints piceous, apices of the anterior femora stramineous; tegmina greyish-white thickly mottled and punctured with shining fuscous-brown, the claval sutural margin less so and paler, the upper apical area pale plumbeous intersected by the brown veins and with small brown spots; vertex rounded between the eyes, much broader than long, with a central anterior submarginal impression; scutellum deflected towards a profound central transverse impression; tegmina considerably longer than abdomen.

Length ♀ 6 millim.

Hab. Ceylon; Hakgala (*Green*).

Mr. Green sent me a single example of this distinctly marked species.

Genus XESTOCEPHALUS.

Xestocephalus, *Van Duz. Tr. Am. Ent. Soc.* xix, p. 298 (1892); *Matsum. Termész. Füzetek,* xxv, p. 402 (1902); *Melich. Hom. Faun. Ceylon,* p. 205 (1903).

Type, *X. pulicarius*, Van Duz., a Nearctic species.

Distribution. Nearctic, Eastern Palæarctic, Ethiopian and Oriental Regions.

"Head tumid and rounded before, ocelli placed on the rounded anterior edge superiorly, distant from the eyes; vertex convex, closely evenly punctured, without longitudinal rugæ." (*Van Duzée.*)

Vertex broader than long, anteriorly roundly produced, the lateral margins in a line with the eyes; face narrowing to clypeus which is about half its length; pronotum longer than vertex, convex, strongly deflected on each lateral area, the anterior margin rounded, the posterior margin truncate in front of scutellum and then oblique to the posterior angles; scutellum broad, its apex somewhat longly acutely produced; tegmina considerably longer than abdomen, their apices angularly rounded, costal margin moderately rounded, three prominent apical cells (sometimes imperfectly seen), a transverse subbasal vein in clavus; legs moderate, somewhat slender, the posterior tibiæ prominently spinulose.

This genus may here find a tentative location. At present as already mentioned (*ante*, p. 265) its taxonomic position is not a matter of uniform agreement among Homopterists.

2604. **Xestocephalus guttatus**, *Motsch.* (Deltocephalus) *Étud. Ent.* 1859, p. 113; *Matsum.* (Xestocephalus) *Termész. Füzetek*, xxv, p. 403 (1902); *Melich. Hom. Faun. Ceylon*, p. 206, t. v, f. 12, *a, b* (1903); *id. Wien. ent. Zeit.* xxiv, p. 303 (1905).

"A small species similar to the European *Deltocephalus pulicarius*. Body yellowish-brown, the whole surface strewn with pale round or longish dots; vertex as long as breadth between the eyes; front

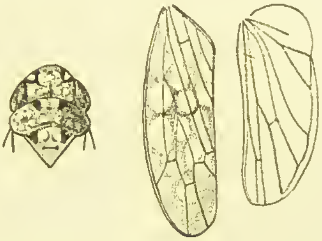

Fig. 221.—*Xestocephalus guttatus.*

broader, obtusely rounded, strongly arched, with numerous small pale spots; face arched, shining brownish-yellow, very irregularly marked with pale suffused spots, sometimes unicolorous; pronotum as long as vertex, with two transverse series of pale dots and between which on each side of the front margin is a dark almost quadrangular marginal spot; scutellum with a black triangular spot in the basal angles and between them similar pale dots; tegmina short, oval, hyaline, with brown veins between which are numerous longish or short oval pale spots thickly crowded together, so that in places they coalesce, the ground-colour also forms in many places, especially in the the apical area and on the terminal veins, longish spots; wings dirty-white with pale yellowish veins; pectus and abdomen black, the abdominal segments extremely narrowly margined with yellow; legs brownish-yellow, unspotted." (*Melichar.*)

"Length ♂ & ♀ 2 millim."

Hab. Ceylon; Henaratgoda (*fide Melichar*), Colombo (*fide Motschoulsky*).—Japan (*fide Matsumura*). East Africa (*fide Melichar*).

I have not seen this species and reproduce Melichar's description and figure. Motschoulsky's description is inadequate.

2605. **Xestocephalus apicalis**, *Melich. Hom. Faun. Ceylon*, p. 207 (1903).

"Twice the size of *X. guttatus*; body, as well as vertex, pronotum and scutellum brownish-yellow, shining, not pale spotted; face rather paler, unmarked; tegmina brownish-yellow, with shady greyish-brown markings which seem to indicate the structure of ocelli, the apical point dark brown as far as the transverse veins

and a spot on the costal margin before the outer transverse vein, in middle of costal margin an opaque milk-white round spot; wings greyish-white with brownish veins; body beneath and legs brownish-yellow. Easily distinguished from *X. guttatus* by the considerable size and the absence of pale spots." (*Melichar.*)

"Length ♀ 3 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

I have not seen this species.

2606. **Xestocephalus paganurus,** *Melich. Hom. Faun. Ceylon,* p. 207 (1903).

"Similar to *X. apicalis* in form and size and to *X. guttatus* in markings; the whole body is yellowish-brown, shining; vertex unspotted; pronotum with four pale roundish spots along the posterior margin, and four similar spots forming a semicircle on the disk; scutellum with a brown triangle in the basal angles; tegmina twice as long as broad with numerous large pale yellow roundish spots which locally coalesce, the last spot on costal margin exhibiting a semicircular figure; wings fuliginous; face brown; front unmarked, smooth, arched; body beneath and legs brown; dorsum piceous-brown." (*Melichar.*)

"Length ♀ 3 millim."

Hab. Ceylon (*fide Melichar*).

I have not seen this species.

2607. **Xestocephalus pardalinus,** sp. n.

Vertex brownish-ochraceous, with two discal spots and two

Fig. 222.—*Xestocephalus pardalinus.*

transverse lines on apical margin (defining two pale spots) castaneous; pronotum castaneous with eight ochraceous spots, six

in arcuate marginal series and two at basal margin; scutellum brownish-ochraceous, with a piceous spot near each basal angle; tegmina brownish-ochraceous with numerous large piceous spots and reticulate macular markings, these are faithfully pourtrayed on the figure and are thus better described than by words, the apical area, however, is distinctly paler and the spots there appear more prominent; body beneath and legs ochraceous, the posterior tibiæ spotted with piceous-brown; the anterior edge of the face is marked by two dark transverse lines, thus making the two pale spots as seen on edge of vertex very visible.

Length 4 millim.

Hab. Ceylon; Maskeliya (*Green*).

Division *THAMNOTETTIXARIA.*

Athysanini, *Van Duzée* (part.), *Trans. Am. Ent. Soc.* xix, p. 299 (1892).

Differs from the preceding division *Athysanusaria* by the face being always more or less longer than broad at base, the other characters as in that division.

Synopsis of Genera.

A. Breadth of vertex between eyes not broader than that of face at base.
- a. Lateral margins of face nearly straight or slightly rounded.
  - *a.* Face longer than breadth between eyes.
    - *a'.* Vertex about half as long as breadth between eyes .... MONOBAZUS, p. 351.
    - *b'.* Vertex more than half as long as breadth between eyes .... BANUS, p. 353.
  - *b.* Face as long as but not longer than breadth between eyes .... THAMNOTETTIX, p. 354.
- b. Lateral margins of face sinuate at anterior margins of eyes .... BHATIA, p. 357.

B. Breadth of vertex between eyes broader than that of face at base.
- a. Breadth of vertex between eyes nearly equal to length of pronotum and scutellum together .... DIVUS, p. 365.
- b. Breadth of vertex between eyes considerably shorter than length of pronotum and scutellum together.
  - *a.* Clypeus broadest at base .... NEPHOTETTIX, p. 359.
  - *b.* Clypeus narrowest at base .... EUTETTIX, p. 362.

Genus **MONOBAZUS.**

Type, *M. himalayensis*, Dist.

Distribution. N. India.

Vertex about half as long as breadth between eyes, rounded in

front; eyes large, obliquely directed over the anterior angles of the pronotum, ocelli near the eyes on the anterior edge; face longer than broad, lateral margins a little rounded, narrowing to clypeus which is slender and about half the length of face, margins of cheeks angulate; pronotum arched, nearly twice as long as vertex, lateral margins oblique and inwardly oblique at posterior angles, posterior margin truncate, anterior margin convexly produced; scutellum broad, subtriangular, lateral margins shorter than the basal, apex very finely apically produced; legs of moderate length, posterior tibiæ somewhat flattened and strongly spinulose; tegmina moderately broad, longer than abdomen, apical cells four, two anteapical cells, a transverse vein on disk of basal area.

2608. **Monobazus himalayensis**, sp. n.

Vertex black with numerous pale ochraceous or brownish-ochraceous spots; eyes black; pronotum testaceous with a series of anterior submarginal pale spots; scutellum testaceous, with six pale ochraceous spots more or less margined with black, two on each

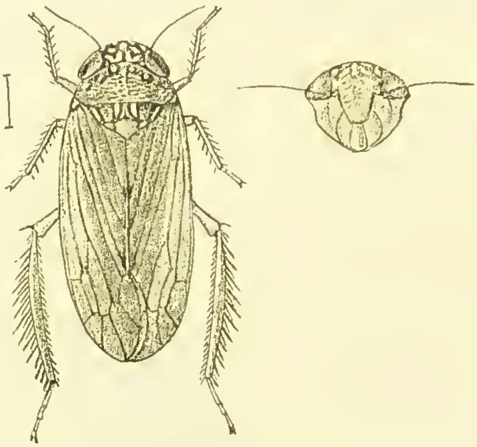

Fig. 223.—*Monobazus himalayensis.*

lateral margin and two centrally at base; sternum and legs ochraceous, face pale testaceous, the lateral areas ochraceous, with a central pale longitudinal spot at base and four small spots on basal edge, all margined with black; abdomen beneath black, the segmental margins ochraceous: tegmina pale bronzy, subhyaline, the veins darker, three small dark spots on each claval sutural margin, apical area a little paler; pronotum finely transversely striate and with a faint central longitudinal ridge; scutellum with a very finely incised transverse line before apical area; face transversely striate on each lateral area.

Length 5 millim.

Hab. N.E. Himalayas; Kurseong (*Annandale*).

Genus BANUS, nov.

Type, *B. oblatus*, Dist.

Distribution. Ceylon.

Vertex much shorter than breadth between eyes, subconically rounded in front, strongly concave at base, lateral margins almost in a line with outer margins of eyes, which are long and obliquely exteud over the lateral pronotal margins; face twice as long as clypeus, lateral margins roundly narrowing to clypeus; pronotum longer than vertex, subangularly produced between the eyes, the posterior angles roundly subprominent, posterior margin a little concavely sinuate; scutellum broad, much broader than long, lateral margins straight, transversely impressed before apical area; legs moderately slender, posterior tibiæ spinulose; tegmina much longer than abdomen, broad, ample, the costal and apical margins convexly rounded, four apical and three anteapical cells, two angularly united transverse veins at about one-fourth from base.

2609. **Banus oblatus**, sp. n.

Pale ochraceous; vertex with irregular piceous markings which principally consist of a basal central longitudinal liue with paler margins, a spot near inner margin of each eye, the apical area

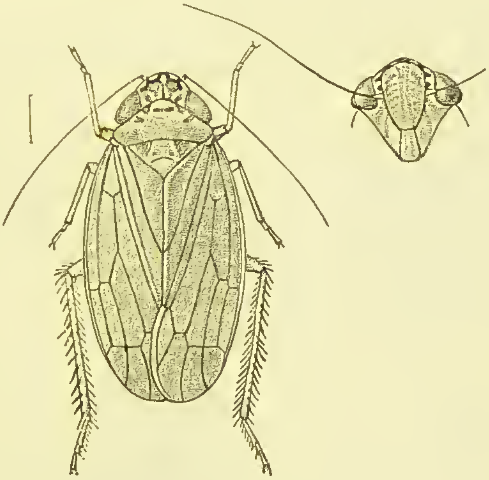

Fig. 224.—*Banus oblatus.*

black containing three pale spots before which the colour is more rufous-brown; pronotum with scattered piceous markings on anterior area; scutellum with an obscure brownish angular spot

near each basal angle and two small spots of the same colour on disk; tegmina shining ochraceous, the veins a little darker; body beneath and legs ochraceous; face with some small transverse pale black-margined spots on anterior margin, the lateral margins very narrowly black.

Length 5 millim.

Hab. Ceylon; Peradeniya (*Green*). Tenasserim; Myitta (*Doherty*).

Genus THAMNOTETTIX.

Thamnotettix, *Zett. Ins. Lapp.* p. 292 (1838); *Stål, Hem. Afr.* iv, p. 122 (1866); *Atkins. J. A. S. B.* liv, p. 111 (1885); *Edw. Tr. E. S.* 1888, p. 62; *Van Duz. Tr. Am. Ent. Soc.* xix, p. 300 (1892); *Melich. Hom. Faun. Ceylon*, p. 184 (1903).

Types, *T. lineatus*, Fabr., and *T. prasinus*, Fall.; Palæarctic species.

Distribution. Generally distributed.

"Body oval or very oblong; head variable in breadth and shape, the anterior margin obtuse or very obtuse, vertex horizontal, face dilated, reclined, slightly convex; front occupying the greater part of the intraocular breadth of the face; ocelli on the anterior margin of the vertex at or near the eyes; pronotum transverse; scutellum moderate or small, as long as the pronotum or shorter; tegmina membranous, with four or five apical areas, usually valvate and margined at the apex; legs moderate, posterior tibiæ very spinulose." (*Stål.*)

2610. **Thamnotettix brevissimus**, *Leth. Bull. Soc. Zool. Fr.* 1892, p. 209.

"Oval, short, fuscous; vertex semicircular, in middle equal to length of pronotum, frontal-vertical suture strongly obtuse, subconvex, black, ornamented with five, interrupted, flavescent, quadrate spots; tegmina fuscous, sparsely sprinkled with pale punctures; appendix almost indistinct; body above and beneath fuscous; legs fuscous." (*Lethierry.*)

"♂. Long. 2 millim. 1 ex."

Hab. Mahé (*Deschamps, fide Lethierry*).

2611. **Thamnotettix greeni**, *Melich. Hom. Faun. Ceylon*, p. 185 (1903).

Pale obscure flavescent; vertex with two minute apical spots and two large discal spots black; pronotum with three anterior small transverse obscure brown spots; scutellum with two large partially concealed black spots near the basal angles; head beneath, body and legs pale yellowish; face with a short line before each eye and the lateral margins behind antennæ blackish; clypeus with two small dark spots at base; posterior tibiæ with

small black spots; tegmina with most of the venation piceous-

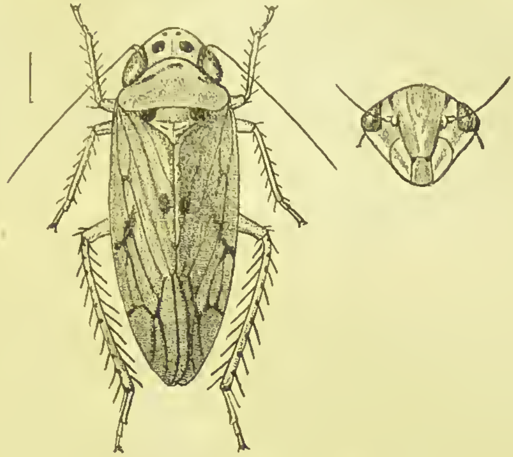

Fig. 225.—*Thamnotettix greeni.*

brown, a black spot beyond middle of clavus and an oblique piceous streak on each lateral area of tegmen near middle.

Length $5\frac{1}{2}$ to 6 millim.

Hab. Ceylon; Pattipola (*Mus. Hongrois*).

The description and figure is taken from a typical specimen kindly lent me by Dr. Horváth.

2612. **Thamnotettix cicur**, *Melich. Hom. Faun. Ceylon*, p. 186 (1903).

Vertex pale flavescent with two small apical spots and two

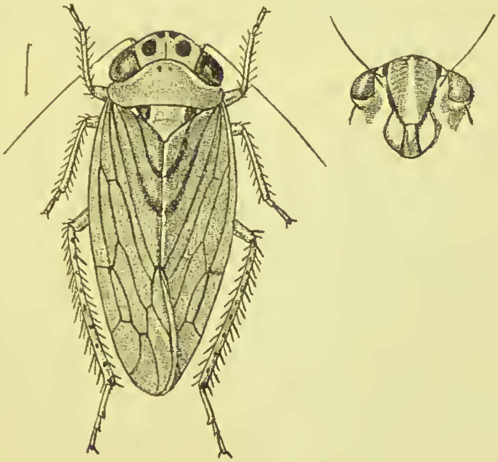

Fig. 226.—*Thamnotettix cicur.*

larger discal spots black; pronotum more ochraceous with two

minute dark spots near anterior margin which is also slightly paler; scutellum flavescent with a black spot near each basal angle; face flavesceut, the lateral margins black, the lateral areas pale castaneous-brown; lateral margins of clypeus black; body beneath and legs flavescent, posterior tibiæ spotted with piceous; tegmina pale, dull, somewhat discoloured ochraceous, a little paler towards apical area, veins fuscous-brown, the claval veins more prominently so.

Length 5½ to 6 millim.

Hab. Ceylon; Pattipola (*Mus. Hongrois*).

I have to thank Dr. Horváth for the opportuuity of figuring this species.

2613. **Jassus ? latruncularius**, *Motsch. Étud. Ent.* 1859, p. 111; *Melich. Hom. Faun. Ceylon*, p. 186 (1903).

"Elongately-subovate, shining, palely fuscous-testaceous; head above with four, tegmina with many subquadrate piceous spots; pronotum infuscate, palely 12-maculate, subhumeral spots somewhat white."

"Size and shape of the European *T.* (*Jassus*) *splendidulus*, Fabr., but of a clear coffee-brown, with the spots black, more or less square, placed in checks between the nervures, which frequently assume a brown as well as black tint. Ou the upper side of the front (vertex) are seen two brown spots posteriorly and two others a little sinuate which surround the ocelli, placed before the eyes and moderately projecting. Legs and underside of the body brownish-testaceous." (*Motschoulsky.*)

"Length 1⅓ lin.; lat. ½ lin."

Hab. Ceylon; Newara Elia (*fide Motschoulsky*).

I have not seen this species and have located it provisionally in agreement with the view of Melichar. By the markings it seems to approach *X. pardalinus*, Dist. (*ante*, p. 350), and may probably belong to *Xestocephalus*.

2614. **Jassus ? curtulus**, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 98 (1863); *Melich. Hom. Faun. Ceylon*, p. 186 (1903).

"Subabbreviated, subdilated, almost parallel, posteriorly angularly truncate, somewhat shining, above fuscous-testaceous, variegated with white and black; vertex triangular, with a white central line and two ochraceous spots on each side; eyes large, oblong, posteriorly convex, cinereous-fuscous, palely margined; ocelli testaceous; antennæ slightly passing the base of the pronotum, testaceous; pronotum as wide as head, strongly transverse, laterally narrowed with three white bands, medially less testaceous, laterally piceous-black; scutellum triangular, black, somewhat whitely margined, sometimes at base whitely bipunctate; tegmina as broad as pronotum, medially slightly arcuately dilated; corium with the cells somewhat fuscously testaceous, blackly margined, their inner areas broadly white, an oblique fascia at anterior

margin of the corium, sinuate spots in middle of membrane forming an interrupted fascia towards apex; anterior and intermediate tibiæ and tarsi testaceously annulated, posterior tibiæ elongate, setose; abdomen above testaceous, extending beyond the tegmina; oviduct in ♀ acuminate, as long as vertex." (*Motschoulsky.*)

"Length ♂ 1 l., lat. elytr. $\frac{1}{2}$ l. ♀. Length $1\frac{1}{5}$ l., lat. elytr. $\frac{1}{2}$ l."

Hab. Ceylon; Patannas Mount (*fide Motschoulsky*).

I do not know this species. Melichar has placed it after *Thamnotettix*, and I have followed him.

Genus **BHATIA**, nov.

Type, *B. olivacea*, Melich.

Distribution. Ceylon.

Vertex transverse, narrow, between eyes more than twice as broad as long, rounded anteriorly, with a transverse incision before apex; face sinuate at anterior margins of eyes, narrowed to clypeus, which is spatulate and constricted at middle; ocelli on anterior margin at a short distance from eyes, which are obliquely oblong and extend half across the lateral margins of the pronotum; pronotum very much longer than vertex, in front broadly rounded, posteriorly flatly slightly concave; scutellum nearly as long as the pronotum, broadly triangular, with a transverse impression before apical area; tegmina passing abdominal apex, the claval veins moderately apically rounded, a transverse vein outside the middle of clavus.

The above description differs in some respects from that of the typical species described and figured by Melichar. I can find no trace of the claval transverse vein, though the pattern of venation in all other respects agrees with his figure.

2615. **Bhatia olivacea**, *Melich.* (Eutettix?) *Hom. Faun. Ceylon*, p. 191, t. vi, f. 1 *a–c* (1903).

"Body robust, broad, longly produced, olive or dirty-green; head with eyes as broad as pronotum; vertex three times as broad as long in middle, arched, in front broadly bowed and provided with a short transverse furrow whereby the tip of the front margin appears sharpened, the sharp corner only visible in middle of margin of vertex disappears on both sides towards the eyes, in the nape are four small brown dots of which the middle ones are very close together; face broader than long, pale green, twice as broad above as at clypeus; at the end of frontal suture the ocelli occur at the passage from the vertex to the front; second joint of antennæ black, antennal bristles as long as half the body; "zügel" semicircular, enclosed by the cheeks; clypeus spatulate, in the middle constricted, at the tip widened; pronotum four times * as long as the vertex, in front broadly rounded, behind

* This is an error, a reference to Melichar's figure will show that the pronotum is only about twice as long.

flatly concave, on the surface arched, smooth, green, with indistinct dots near the front margin; scutellum nearly as long as the pronotum, broadly triangular, with a short transverse line in middle; tegmina rather long, passing tip of abdomen, hyaline, dirty olive-green, with delicate distinct greenish-yellow veins; in the clavus a transverse vein connects the outer claval vein with the claval

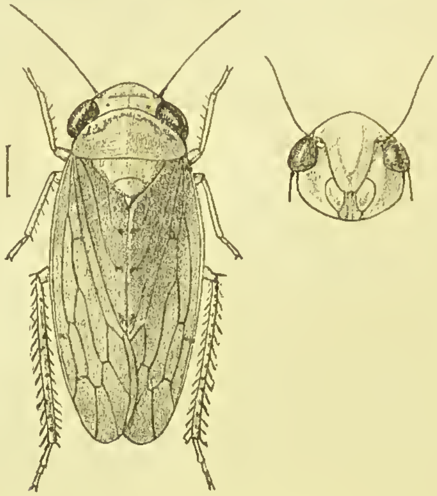

Fig. 227.—*Bhatia olivacea.*

suture, at the end of claval veins are black spots, and the tip of clavus filled up with black, apical margin broadly bordered with dark brown, and there are longitudinal brownish stripes in the four apical cells; wings dark smoky-brown, with brownish-piceous veins; pectus and abdomen olive-green; legs dirty greenish-yellow, femora spotted with brownish, posterior tibiæ set with strong bristles." (*Melichar.*)

Length incl. tegm. 6 to 7 millim.

Hab. Ceylon; Peradeniya (*Green*).

The above description and the figure given by Melichar agree in all essentials with three Ceylonese specimens in my collection, one of which is here figured. The absence of the transverse claval vein I have alluded to in my generic description. The four small brown dots near base of vertex are not constant; there are generally only two, and sometimes none. There are no "longitudinal brownish stripes in the four apical cells," a character which applies to *Kutara brunnescens* (*ante*, p. 309). Melichar's description of this species, which he placed doubtfully in *Eutettix*, would almost apply in certain characters to both genera, *Kutara* and *Bhatia*; but as he stated he only saw one ♀ specimen, he cannot have confounded the two species.

Genus NEPHOTETTIX.

Nephotettix, *Matsum. Termész. Füzetek,* xxv, p. 378 (1902); *Melich. Hom. Faun. Ceylon,* p. 192 (1903).

Type, *N. cincticeps*, Matsum., from Japan.

Distribution. Eastern Palæarctic, Ethiopian, Oriental. Malayan and Australian Regions.

"Body narrow, compressed, vertex short, in front broadly rounded, union of vertex to front rounded, a transverse furrow rather near front margin running from one eye to the other, frontal margin rather upcurved, the disk of vertex arched; ocelli at union of vertex to front, not close to eyes and on the inside of the suture of the face and cheeks; face broad as long or shorter than the width of the cheek-angles, flat, at the ocelli twice as broad as at the clypeus, margins of the cheeks flatly curved; clypeus extending beyond the margins of the cheeks, somewhat quadrangular, broadest at base; pronotum longer than the medial length of vertex, on posterior margin very flatly curved, at the sides strongly rounded; tegmina at apices broadly rounded off, with only one discal cell; three middle cells, the first of which is small, and four terminal cells, no transverse vein on clavus, membranal appendix rather broad; wings at apices narrowly rounded; venation as in *Thamnotettix*." (*Matsumura.*)

2616. **Nephotettix bipunctatus,** *Fabr.* (Cicada) *Syst. Rhyng.* p. 78 (1803); *Stål* (Thamnotettix), *Hem. Fabr.* ii, p. 82 (1869); *Atkins. J. A. S. B.* liv, p. 111 (1885); *Matsum.* (Nephotettix) *Termész. Füzetek,* xxv, p. 379 (1902).

Yellowish-green, shining, smooth; face (except the lateral margins) and a spot on each side of clypeus black; tegmina with a spot before the middle and the apical two-fifths black; lateral spots to the sternum and abdomen black.

The above is a description of the typical male, but in some specimens of the same sex the face is altogether ochraceous or greenish-ochraceous, with lateral transverse darker lines. The female is usually without the discal black spot to the tegmina and with the face as just described for the varietal male.

Length incl. tegm. 4 to $4\frac{1}{2}$ millim.

Hab. Calcutta (*Brit. Mus.*). Pusa (*Lefroy*); Ranchi (*Irvine*); Sara Ghat.

Dr. A. G. Butler received one pound weight of these insects from Calcutta as food for birds in his aviaries.

Dr. Annandale informs me that "in Calcutta this species appears in enormous swarms in the air at night about the end of the rains (generally in October). Gas-lamps in the street have to be protected against the 'green fly,' as it is called, to prevent the light being put out by the numbers that dash into it. I have

known over three pounds weight of dead 'green flies' and other insects to be swept up under a couple of electric lamps one morning. The swarms do not consist entirely of this species, but

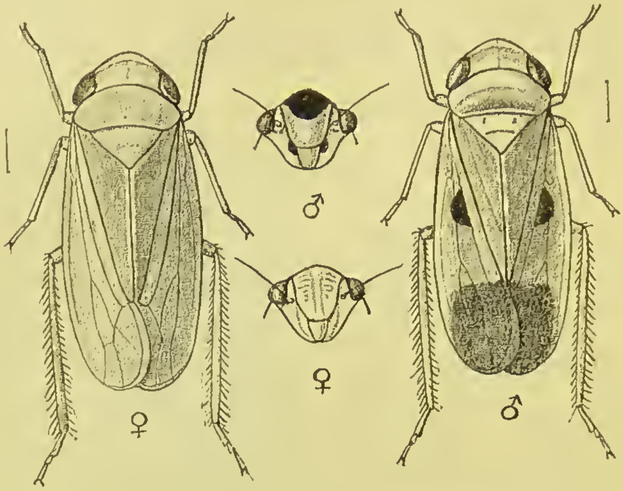

Fig. 228.—*Nephotettix bipunctatus.*

include a certain number of individuals of *N. apicalis*, Motsch., of small Fulgorids, and other minute insects. Some specimens of *N. bipunctatus* which I kept in captivity lived for over a fortnight apparently without food."

2617. **Nephotettix apicalis**, *Motsch.* (Pediopsis) *Étud. Ent.* p. 110 (1859); *Melich.* (part.) *Hom. Faun. Ceylon*, p. 193 (1903), ♀; *id. Wien. ent. Zeit.* xxiv, p. 303 (1905); *Matsum. Trans. Sapporo Nat. Hist. Soc.* i, p. 20 (1905).
Pediopsis nigromaculatus, *Motsch. Étud. Ent.* p. 111 (1859); *Matsum. Termész. Füzetek*, xxv, p. 379 (1902); *Kirby* (Thamnotettix), *J. Linn. Soc., Zool.* xxiv, p. 173 (1891), ♂.
Thamnotettix nigropicta, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 740; *Atkins. J. A. S. B.* lvii, p. 338 (1889).
Nephotettix nigropicta, *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 333 (1906).

Yellowish-virescent, smooth, shining; face, anterior subimpressed transverse line on vertex between anterior margins of eyes, anterior margin of pronotum, scutellar and commissural margins of clavus, a spot before the middle extending to the claval suture and there acutely produced hindward, the apical third of tegmina, sternum, abdomen, greater part of the femora, anterior tibiæ and the tarsi black; the posterior tibiæ at the bases of the spinules spotted with black; ventral incisures flavescent.

Closely allied to *N. bipunctatus*, Fabr., but differs in having the head shorter and more obtuse, anteriorly obtusely rounded, and by the marking of same. Head as broad as the pronotum, but

Fig. 229.—*Nephotettix apicalis.*

somewhat shorter; vertex a little longer in the middle than at the eyes, scarcely twice as broad between eyes as long, anteriorly within the margin transversely impressed.

Length incl. tegm. 4 to 5 millim.

Hab. Calcutta (*fide Atkinson*); Pusa, Dacca (*Lefroy*). Ceylon; Colombo (*fide Motschoulsky*), Pundaluoya, Peradeniya (*Green*), Henaratgoda, Negombo, Bandarawella, Putalam (*fide Melichar*).—Borneo, Sumatra (*fide Atkinson*). Philippines (*fide Stål*). East Africa (*fide Melichar*). Natal; Durban (*Muir*, *Brit. Mus.*).

I only possess male specimens of this species, which agree with the description of *Pediopsis nigromaculatus*, Motsch. Melichar seems quite correctly to have identified the *P. apicalis*, Motsch., as the female form, and that name takes precedence, and eliminating the *Selenocephalus cincticeps*, Uhler (Japan), from his synonymy I am in agreement with his recognition of the species, which is also the view of Matsumura and Kirby. Kirkaldy (*supra*, p. 331) has confused the species entirely, as he writes that *N. bipunctatus*, Fabr., should replace the name *apicalis*, while *T. nigropictus* should replace *cincticeps*, Uhler.

"One of the small green insects that suddenly appear towards the end of the rains (September usually) in Calcutta. During the few days that they occur they may be found at night in considerable heaps beneath the lamps in the public streets, and they disappear as abruptly as they come. *N. bipunctatus*, Fabr., appears at the same time." (*Atkinson.*)

This species is never so abundant as *N. bipunctatus* in Calcutta,

but has a wider seasonal range. The first specimen I sent in 1907 was taken at light at the end of August. After this time it becomes commoner, at light and among long grass, and is found throughout the cold weather, disappearing in the hot season." (*Nelson Annandale.*)

Genus EUTETTIX.

Eutettix, *Van Duzée, Psyche*, vi, p. 307 (1892); *id. Tr. Am. Ent. Soc.* xix, p. 300 (1892); *Matsum. Termész. Füzetek*, xxv, p. 380 (1902); *Melich. Hom. Faun. Ceylon*, p. 189 (1903).

Type, *E. luridus*, Van Duzée, a Nearctic species.

Distribution. Nearctic, Palæarctic, Ethiopian, Oriental, Malayan and Australasian Regions.

"Intermediate in its characters between *Thamnotettix* and *Athysanus.* In form the species resembles *Phlepsius*, being broader and stouter than in *Thamnotettix.* The vertex is rounded anteriorly and more or less transversely impressed behind the apex; the front is nearly as wide as in *Athysanus*; the elytra are proportionally shorter than in *Thamnotettix*, and moderately valvated at the apex, with one transverse nervure between the first and second sectors. The sides of the pronotum are shorter than in *Thamnotettix* and ecarinate." (*Van Duzée.*)

2618. **Eutettix disciguttus**, *Walk.* (Acocephala) *J. Linn. Soc., Zool.* i, p. 172 (1857); *Matsum. Tr. Sapporo N. H. Soc.* i, p. 20 (1905).

Thamnotettix sellata, *Uhler, Proc. U.S. Nat. Mus.* xix, p. 294 (1896); *Matsum.* (Eutettix) *Termész. Füzetek*, xxv, p. 381, fig. (1902); *Melich. Hom. Faun. Ceylon*, p. 189 (1903); *id. Wien. ent. Zeit.* xxiv, p. 302 (1905); *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 331 (1906).

Vertex and pronotum pale virescent slightly tinged with ochraceous, vertex with two small dark spots on basal margin; scutellum usually more ochraceous than pronotum, with scattered brownish spots, a series of small basal marginal spots darker and more piceous in hue; head beneath (including face) pale virescent, face with short indistinct transverse striæ; body beneath and legs more ochraceous, the tibiæ finely darkly maculate; tegmina creamy-white, the venations and some small scattered spots pale fuscous, a large somewhat outwardly rounded brownish spot or patch extending beyond apex of claval area, more or less margined with piceous, and usually with a large piceous spot (sometimes absent) on disk at its inner margin, and containing two or three creamy spots on sutural margin, the upper and larger two enclosing a minute brown spot, apex of tegmina with a more or less well-defined brownish patch preceded by a discal piceous spot.

Length incl. tegm. 4 millim.

Hab. Ceylon; Marawila (*Green*), Peradeniya, Henaratgoda (*fide*

Melichar).—Borneo (*Wallace, Brit. Mus.*); Santubong (*Hewitt*). Distributed generally throughout the Malayan Archipelago. Queensland. Japan. East Africa (*fide Melichar*).

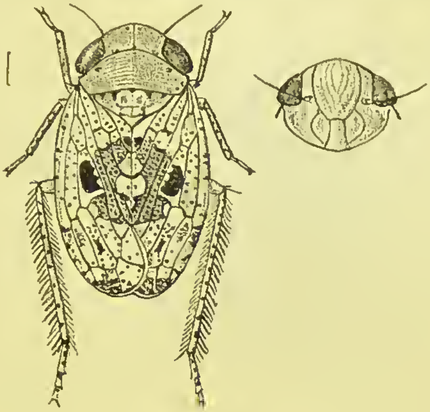

Fig. 230.—*Eutettix disciguttus.*

The specimen figured is a Ceylonese specimen which exactly agrees with Walker's Bornean type.

2619. **Eutettix apricus,** *Melich. Hom. Faun. Ceylon,* p. 190 (1903).

"Size, form and pattern of the previous species, but differs as follows:—Vertex and pronotum smooth, shining greenish-yellow without any markings; face also greenish-yellow, unmarked; scutellum rusty-yellow, with four darker longitudinal streaks at the base; tegmina hyaline, with rust-brown veins and with numerous spots and transverse dashes between them, the large triangular spot on the terminal suture rust-brown, strongly shining, and bordered on the fore and apical margins with numerous hyaline white spots, in the apical area of tegmina four white hyaline black-bordered spots in a quadrangle; wings hyaline, strongly irridescent, with brown veins; pectus and abdomen dirty-yellow, a black longitudinal mark on the back; legs as in the previous species." (*Melichar.*)

"Length ♀ 3½ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

I have not seen this species; it was described from a single ♀ specimen, and is possibly only a varietal form of *E. disciguttus.*

2620. **Eutettix phycitis,** sp. n.

Vertex about half as long as breadth between eyes; vertex and pronotum virescent, the former more tinted with ochraceous;

scutellum pale brownish, a large dark brown spot in each basal angle, an anterior central longitudinal line and the transverse impression brown; head beneath pale yellowish; sternum, abdomen and legs brownish-ochraceous, the posterior tibiæ with a

Fig. 231.—*Eutettix phycitis.*

series of small piceous spots; tegmina pale brownish with white spots and suffusions, the white spots more numerous on basal area, claval sutural margin, and anterior and apical area of tegmen; some distinct piceous-brown small spots on apical area of costal margin; wings pale and strongly iridescent; vertex with an obscure transverse impression in front of eyes; scutellum strongly centrally transversely impressed.

Length incl. tegm. 3 to 4 millim.

Hab. Calcutta (*Indian Mus.*); Pusa (*Lefroy*); Purneah (*Paiva*). Ceylon; Kandy (*Green*).

2621. **Eutettix smaragdinus**, sp. n.

Above bright green, the vertex often yellowish-green; eyes black; tegmina finely and irregularly spotted with white, the apical area brownish spotted with white between the veins; body beneath and legs pale yellowish-green, the tarsi pale brownish; vertex smooth; pronotum with an anterior submarginal arcuate linear series of coarse punctures; face with obscure transverse striations on each lateral area; posterior tibiæ with a linear series of small piceous spots, the spinules long and prominent; tarsi spotted with piceous.

Length $3\frac{1}{2}$ to 4 millim.

Hab. Bengal; Pusa (*Lefroy*).

The distinct coloration and the anterior linear series of punctures to the pronotum are characteristic of this species.

Genus DIVUS, nov.

Type, *D. bipunctatus*, Melich.

Distribution. Ceylon.

Vertex more than twice as broad between eyes as long, rounded in front of eyes, which are large, oblique and projecting over the anterior pronotal angles ; face strongly concavely sinuate on each side before the antennal cavities, its apex truncate and a little broader than base of clypeus, which is less than half the length of face ; cheeks broad, their lateral margins not angulate ; pronotum about twice the length of vertex, arched, prominently deflected on each side ; scutellum subtriangular, transversely depressed before apical area ; tegmina longer than abdomen, apical cells four, two anteapical cells, two transverse discal veins near base ; anterior and intermediate tibiæ finely, posterior tibiæ strongly spinulose.

2622. **Divus bipunctatus**, *Melich.* (Eutettix) *Hom. Faun. Ceylon,* p. 192 (1903).

" Vertex twice as broad as long, rounded in front, with a transverse furrow running from one eye to the other, and two large

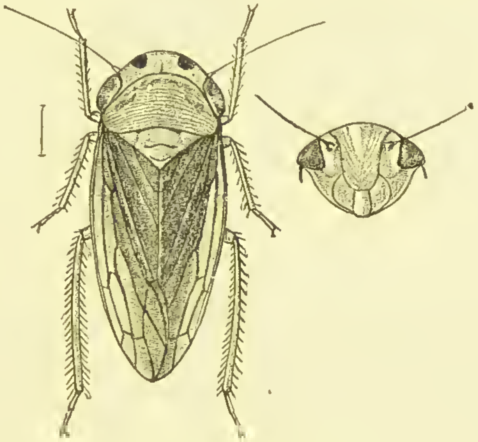

Fig. 232.—*Divus bipunctatus.*

black spots, each placed at the end of the transverse furrow ; vertex, pronotum, scutellum and tegmina dirty-yellow, shining ; veins of tegmina delicate, rather dark ; underside and legs dirty-yellow, back brownish." (*Melichar.*)

" Length ♂ 6 millim."

Hab. Ceylon (*fide Melichar*) : Peradeniya (*Green*).

I figure a specimen which appears to represent this species, the type of which I have not seen. The dark dorsum is reflected

through the tegmina, and thus gives them the clouded appearance as in the above figure. At the basal margin of the scutellum are two very obscure transverse linear black spots; the pronotum is thickly finely transversely striate, the face obliquely striate on each lateral area.

A single example was sent me by Mr. Green.

Division *CICADULARIA.*

Cicadulini, *Van Duzée, Trans. Am. Ent. Soc.* xix, p. 298 (1892).

"Outer branch of the first sector of the elytra with its outer fork obsolete, or nearly so; anterior edge of the head well rounded, vertex but little if at all longer on the middle than next the eye." (*Van Duzée.*)

Vertex only half as long, or less than half as long, as breadth between eyes.

*Synopsis of Genera.**

A. "First two sectors of the wings coalescing before the apex, the resulting nervure uniting with the costa some distance before the tip of the wing, thus forming but two apical areoles" .... BALCLUTHA, p. 368.

B. "First two sectors of the wings united for a greater or less distance, but soon again separating and attaining the apex of the wing, thus forming three apical areoles" .. CICADULA, p. 366.

Genus **CICADULA.**

Cicadula, *Zett. Ins. Lapp.* p. 296 (1838); *Fieb. Verh. z.-b. Ges. Wien,* xvi, p. 506 (1866); *Van Duzée, Psyche,* vi, p. 305 (1892); *id. Tr. Am. Ent. Soc.* xix, p. 300 (1892); *Melich. Hom. Faun. Ceylon,* p. 187 (1903).
Macrosteles, *Fieb. Verh. z.-b. Ges. Wien,* xvi, p. 504 (1866).
Thamnus, *Fieb. tom. cit.* p. 505.

Type, *C. variata*, Fall., a Palæarctic species.

Distribution. Probably generally distributed.

In Fieber's system, adopted by Puton, *Cicadula* is restricted to those species in which the outer branch of the first sector of the tegmina is obsolete or nearly so, thus leaving two anteapical areoles instead of three, as in *Thamnotettix*. *Cicadula*, as restricted by Van Duzée, has "Head broad and rounded before as

* As defined by Van Duzée.

in *Limnotettix*, the front is rather narrow, the sides of the pronotum of moderate length and without a carina; tegmina long with a well-developed appendix."

Van Duzée also remarks that *Cicadula*, *Limnotettix*, *Chlorotettix*, *Thamnotettix*, *Eutettix*, and *Athysanus* might be considered as subgenera of but one, or possibly two, generic groups separated by *Thamnotettix* and *Athysanus*. "They are certainly unsatisfactory in their characters and quite artificial." He, however, subsequently (1894) retains them in his system.

2623. **Cicadula vaga**, *Melich. Hom. Faun. Ceylon*, p. 187 (1903).

Vertex pale ochraceous, two transverse spots on anterior margin and two smaller discal spots between eyes, black; pronotum pale brownish-ochraceous, the anterior and posterior margins paler; scutellum pale ochraceous with two partially concealed black spots at base; head beneath ochraceous; face with two black spots on

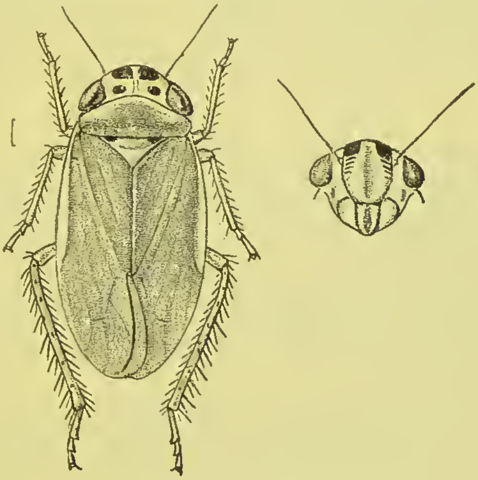

Fig. 233.—*Cicadula vaga*.

basal margin, a central line and the transverse striæ brownish; clypeus with the margins and a central fascia brownish; tegmina pale tawny-grey, the costal area for more than half its length pale yellowish-grey; legs ochraceous, posterior tibiæ finely spotted with brown.

Length $3\frac{1}{4}$ millim.

Hab. Ceylon; Pattipola (*Mus. Hongrois*).

I have figured a cotype obligingly sent to me for that purpose by Dr. Horváth of Budapest.

Genus BALCLUTHA.

Gnathodus, *Fieb. Verh. z.-b. Ges. Wien*, xvi, p. 504 (1866); *Edw. Tr. E. S.* 1888, p. 77; *Van Duzée, Tr. Am. Ent. Soc.* xix, p. 300 (1892), nom. præocc.
Balclutha, *Kirk, Entomologist*, xxxiii, p. 243 (1900), nom. n.; *Oshan. Verz. Pal. Hem.* Bd. ii, p. 185 (1906).

Type, *B. punctata*, Thunb.
Distribution. Probably almost universally distributed.

"Body oblong, obtuse in front, much narrowed behind. Crown very short, about one-fourth as long as the pronotum *, scarcely longer in the middle than at the sides. Elytra much longer than the abdomen, overlapping at the apex; outer branch of the cubital nerve obsolete; membrane very large, as long as the inner margin of the clavus; appendix large. Submarginal wing-nerve complete; upper branch of the second wing-nerve confluent with the first, and running into the submarginal nerve as one nerve; third wing-nerve joined to the lower branch of the second by a transverse nerve." (*Edwards.*)

"First two sectors of the wings coalescing before the apex, the resulting nervure uniting with the costa some distance before the tip of the wing, thus forming but two apical areoles." (*Van Duzée.*)

2624. **Balclutha punctata**, *Thunb.* (Cicada) *Act. Ups.* iv, p. 21 (1784); *Zett.* (Cicadula) *Ins. Lapp.* p. 298 (1840); *Fieb.* (Gnathodus) *Verh. z.-b. Ges. Wien*, xvi, p. 505 (1866); *Edw. Tr. E. S.* 1888, p. 77; *Prov.* (Typhlocyba) *Pet. Faune Ent. Canad.* iii, p. 301 (1890); *Van Duzée* (Gnathodus), *Tr. Am. Ent. Soc.* xxi, p. 306 (1894); *Edw. Hem.-Hom. Brit. Islds.* p. 191 (1896); *Matsum. Termész. Füzetek*, xxv, p. 358 (1902); *Melich. Hom. Faun. Ceylon*, p. 207 (1903); *Oshan.* (Balclutha) *Verz. Pal. Hem.* Bd. ii, *Hom.* p. 185 (1906).

♂. "Greyish-yellow or pale salmon-coloured; elytra with a few black spots arranged in two oblique bands, one on the basal third, the other next the angular veins; ♀ pale green, the spots on the elytra reduced to two on the clavus, one at the apex, the other near the base, and one or two on the corium next the angular veins. Crown obtusely produced in front. Head, pronotum and scutellum sometimes marked with fuscous or black, in the apex of each wing a fuscous streak. Abdomen black, hind margins of the segments narrowly pale. Legs pale; tibiæ sometimes dark towards the apex, and with dark points on the outer side." (*Edwards.*)

I have not seen the species from the Orient, the above is a description of it as found in England. I have figured a ♂ and ♀ example taken in Silesia by Dr. Eger, in which the ♀ specimen

* The vertex would be better described as about one third as long as the pronotum.

is almost unicolorous, the black spots being practically indiscernible.

Length ♂ & ♀ 3½ to 4 millim.

Hab. Ceylon; Peradeniya (*fide Melichar*).—New Guinea (*fide Melichar*). Japan (*fide Matsumura*). Generally distributed

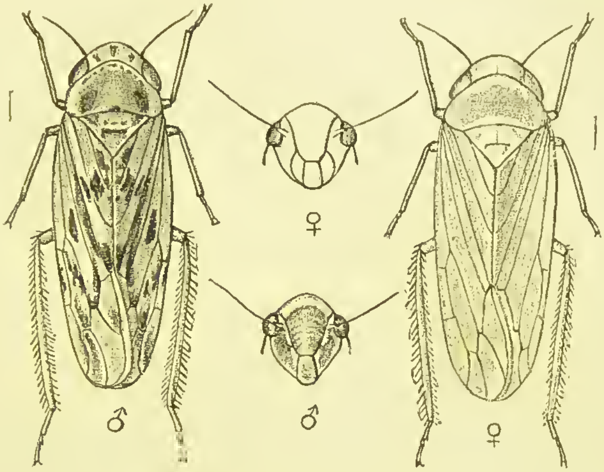

Fig. 234.—*Balclutha punctata.*

throughout the Palæarctic Region. Nearctic Region. "Canada, eastern United States to Iowa and Texas" (*fide Van Duzée*).

2625. **Balclutha lineata**, *Melich.* (Gnathodus) *Hom. Faun. Ceylon*, p. 208 (1903); *id. Wien. ent. Zeit.* xxiv, p. 304 (1905).

"Elongate, narrow, yellowish-white or pale yellowish; vertex rounded, ocelli near the eyes, distinctly visible at passage of vertex to front; pronotum with five rusty-yellow longitudinal lines, of which the middle one is produced on the scutellum to the impressed transverse line, the adjoining lines form indistinct spots in the basal angles; tegmina hyaline, dirty-yellow, sometimes reddish-yellow, with white veins which are margined with brown in the apical area and are therefore more strongly prominent, frequently the middle apical cell is quite filled with brown and this stripe extends upwards into the corium; wings hyaline, vitreous, with delicate veins; underside pale yellow; dorsum black; legs pale yellowish, claws dark." (*Melichar.*)

"Length ♂ & ♀ 3 to 3½ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).—East Africa (*fide Melichar*).

2626. **Balclutha rubrostriata**, *Melich.* (Gnathodus) *Hom. Faun. Ceylon*, p. 208 (1903).

"Resembles *B. punctata*, Thunb., in size and shape; head (including vertex), pronotum and scutellum pale yellowish-white; on second joint of antennæ and on the base of the antennal bristle a distinct hair is visible; tegmina milky-white with white veins and pale red longitudinal stripes between them, a similar stripe in the clavus, interrupted by the outer claval vein, the second stripe extends from the shoulder to the apex of tegmen, interrupted in several places by strong white veins, membrane vitreous; wings hyaline, vitreous, with white veins; pectus and abdomen white; dorsum black in middle; legs white, claws dark." (*Melichar.*)

"Length ♀ $4\frac{1}{2}$ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

2627. **Balclutha viridis**, *Matsum.* (Gnathodus) *Termész. Füzetek*, xxv, p. 359 (1902); *Melich. Hom. Faun. Ceylon*, p. 208 (1903).

"Whole body saturated-green without any markings; vertex in middle about half as long as breadth between eyes, in front very slightly obtusely angulate, almost rounded, arched above, face as broad as long, unmarked; pronotum twice as long as vertex, in front strongly arcuate, posteriorly slightly excavate, laterally rounded-off, an impressed, waved, transverse line on disk near the anterior margin; scutellum triangular, flattened or smooth, with an impressed transverse line in middle; tegmina moderately long, somewhat broader in middle, narrowed behind, saturated-green, towards apex paler, almost hyaline and transparent, all the veins green, in apical area faintly green; wings milky-white; pectus and abdomen both above and beneath green; legs green, tarsi rusty-yellow; posterior tibiæ with yellowish-white bristles on the outer ridges." (*Melichar.*)

"Length ♂ $3\frac{1}{2}$, ♀ 4 millim."

Hab. Ceylon; Peradeniya, Henaratgoda (*fide Melichar*).

2628. **Balclutha intrusa**, *Melich.* (Gnathodus) *Hom. Faun. Ceylon*, p. 209 (1903); *Matsum. Journ. Coll. Sci. Imp. Univ. Tōkyo*, xxiii, p. 11 (1908).

"Body longish, narrow, pale greyish-white; vertex narrow, in front very flatly rounded, with two greyish spots which are, however, not invariably present; front with some rusty-yellow transverse dashes, antennal cavities blackish; pronotum and scutellum unmarked, or with faint longitudinal stripes; tegmina pale greyish-white, opaque, apical parts slightly tinged with brownish, veins delicate white; wings with milky-white suffusions; pectus at sides, or in the whole circumference, black; abdomen

somewhat strongly green; legs pale greenish-white; all the claws dark." (*Melichar.*)

"Length ♂ 2, ♀ $2\frac{1}{2}$ millim."

Hab. Ceylon; Peradeniya, Colombo (*fide Melichar*).—Tunis (*fide Matsumura*).

2629. **Balclutha lævis**, *Melich.* (Gnathodus) *Hom. Faun. Ceylon*, p. 209 (1903); *id. Wien. ent. Zeit.* xxiv, p. 304 (1905).

"A small greenish-yellow or dirty pale green-coloured species without any markings; vertex broadly rounded, narrow; pronotum and scutellum unmarked; tegmina pale green hyaline with white veins, apices slightly brownish; underside and legs pale green, claws weakly brown." (*Melichar.*)

"Length ♂ & ♀ 2 to $2\frac{1}{2}$ millim."

Hab. Ceylon; Peradeniya, Henaratgoda (*fide Melichar*).—East Africa (*fide Melichar*).

Division *DELTOCEPHALUSARIA.*

Deltocephalini, *Van Duzée* (part.), *Tr. Am. Ent. Soc.* xix, p. 298 (1892).

Athysanini, *Van Duzée* (part.), *tom. cit.*

In this division the vertex is more or less angularly produced in front of eyes and is as long as or longer than breadth between eyes.

Synopsis of Genera.

A. Face much longer than breadth between eyes.	
a. Scutellum large, as long as or slightly longer than pronotum	SCAPHOIDEUS, p. 371.
b. Scutellum small, shorter than pronotum	ACONURA, p. 378.
B. Face scarcely longer than breadth between eyes	DELTOCEPHALUS, p. 380.

Genus **SCAPHOIDEUS.**

Scaphoideus, *Uhler, Trans. Maryl. Ac. Sci.* p. 33 (1888); *Van Duz. Tr. Am. Ent. Soc.* xix, p. 299 (1892); *Osborn, J. Cinc. Soc. Nat. Hist.* xix, p. 187 (1900); *Matsum. Termész. Füzetek*, xxv, p. 383 (1902); *Melich. Hom. Faun. Ceylon*, p. 194 (1903).

Type, *S. immistus*, Say, a Nearctic species.

Distribution. Nearctic, Palæarctic, Ethiopian, Oriental, Malayan and Australasian Regions.

"Head triangular, flat above, vertex almost as long as the width between the eyes, subacuminate at tip, the base deeply

sinuated; front longer than wide, deltoid, with the sides near the tip moderately curved, tylus liguliform; cheeks broad, curved, expanded to behind the middle of the eye, acutely tapering at tip and hardly enclosing the entire lora, the lora diagonal, acute at each end; antennæ long and slender; pronotum sublunate, more curved anteriorly than sinuated posteriorly; wing-covers moderately narrow, longer than the abdomen, curved, valvate, the costal areole long, narrow, destitute of cross-veins, followed by a gradually widening cell, beyond this are four apical cells of large size and mostly broad triangular figure; wings with the two apical middle areoles long and narrow, narrowing at base towards the cross-vein; abdomen moderately long and narrow." (*Uhler.*)

2630. **Scaphoideus festivus**, *Matsum. Termész. Füzetek,* xxv, p. 384, t. 1, f. 14 (1902); *Melich. Hom. Faun. Ceylon,* p. 195, t. v, f. 8, *a, b* (1903).
Zurugi-yokobai, Onuki, *Japan Cic. Tokio,* p. 30, t. iv, f. 2 (1901).

Vertex creamy-white, with the lateral margins piceous, and a transverse castaneous fascia between the anterior margins of eyes; pronotum dull obscure greyish, with an anterior marginal and a transverse discal fascia reddish-brown; scutellum reddish-brown, with a transverse white fascia before apex, and some obscure

Fig. 235.—*Scaphoideus festivus.*

longitudinal piceous lines on basal area; tegmina reddish-brown, paler on costal area where there are some oblique linear piceous spots, a series of greyish spots of which the most prominent are three arranged in pairs on each side of claval suture, the others more obscure in basal area of clavus, a piceous spot in apical area;

body beneath and legs stramineous; face with the anterior margin and three more or less transverse lines black.

Length 5 to $5\frac{1}{2}$ millim.

Hab. Ceylon; Peradeniya (*Green*).—Japan (*fide Matsumura*).

2631. **Scaphoideus ornatus**, *Melich. Hom. Faun. Ceylon*, p. 196, t. v, f. 9 (1903).

"Vertex as long as breadth between eyes, triangularly produced, arched above and like pronotum and scutellum greyish-white, two black parallel arched lines on anterior margin running from one eye to the other, and with a broad orange-yellow transverse fascia between the eyes bordered in front with a dark line; face pale yellowish-white, with an anterior black arcuate line parallel with margin of vertex, antennal cavities black; pronotum about as long as vertex, anteriorly strongly arcuately produced, posterior margin nearly straight, lateral margins short and parallel, discally arched, with an orange-yellow transverse spot in middle of anterior margin, and a similarly coloured broad transverse band in middle, the ends angularly broken, running into outer margin where there is a small black dot; scutellum with an orange-yellow transverse spot at base which does not reach the basal angles and extends to the depressed transverse medial line, beyond this impression the colour is silvery shining white with two black marginal dots on each side; tegmina somewhat long, passing abdominal apex, shining hyaline, with brown veins and brown spots between them which enclose several hyaline spots, there being three or four such hyaline spots in clavus among which is an oblong transverse spot in middle of terminal margin bordered in front by a darker spot, also several spots in middle cell, whereas the costal half of tegmina is hyaline with only a dark brown spot before the middle of costa, costal transverse vein dark brown; membrane fuliginous, apical margin clear, a black spot at centre of middle apical cell; wings hyaline with brown veins; pectus and abdomen yellowish-white, the first above black, beneath only the hind borders of connexivum dark; legs yellowish-white, posterior tibiæ with black spots at the bases of pale spines, apices of posterior tibiæ and joints of tarsi as well as claws black." (*Melichar.*)

"Length ♀ $5\frac{1}{2}$ millim."

Hab. N. Bengal; Katihar, Purneah District (*Paiva*). Ceylon; Peradeniya (*fide Melichar*).

2632. **Scaphoideus morosus**, *Melich. Hom. Faun. Ceylon*, p. 197, t. v, f. 14, *a–d* (1903).

Vertex, pronotum and scutellum pale greyish-white; vertex with a subapical transverse line and a broad fascia between the

eyes brownish-testaceous; pronotum with four longitudinal pale brownish-testaceous fasciæ (in the specimen figured by Melichar there is an additional lateral fascia on each side); scutellum with three longitudinal fasciæ with dark margins, the two lateral fasciæ darker, shorter, and posteriorly angulated; body beneath

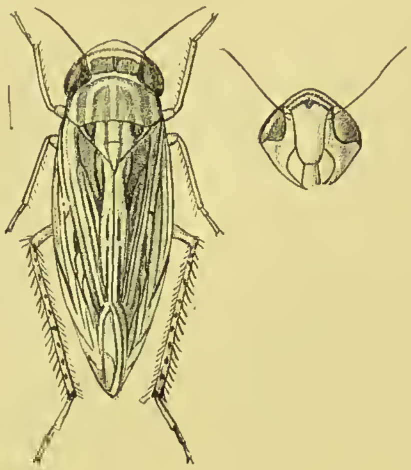

Fig. 236.—*Scaphoideus morosus.*

and legs pale greyish-ochraceous; face with two anterior transversely angulated testaceous lines; posterior tibiæ spotted with piceous; tegmina pale greyish-white, the veins more or less testaceous, three dark obliquely transverse lines on posterior half of costal area, a piceous spot preceded by a smaller white spot in central apical cell.

Length incl. tegm. ♂ & ♀ 4½ to 5 millim.

Hab. Calcutta (*Coll. Dist.*). Ceylon; Peradeniya (*Green*), Point de Galle (*Fletcher*), Henaratgoda, Colombo (*fide Melichar*).

2633. **Scaphoideus indicus**, sp. n.

Vertex testaceous, basal margin white, anterior margin black inwardly bordered with white; pronotum testaceous with an arcuated narrow transverse central fascia and the basal margin narrowly white; scutellum testaceous with a transverse apical fascia, including the apex, white; body beneath and legs pale greyish-ochraceous; a black basal line to face, which is immediately followed by a similar testaceous line; abdomen beneath basally and laterally black; posterior tibiæ spotted with black; tegmina obscure pale flavescent irrorated with greyish, the veins piceous-brown, three alternately piceous and greyish spots on claval suture, three pale spots on apical half of costal area, apical margin

broadly fuscous, outwardly bordered with flavescent and inwardly maculately bordered with the same colour; vertex angularly produced, about as long as breadth between eyes.

Length incl. tegm. 5 millim.

Hab. Assam; Margherita (*Coll. Dist.*). Tenasserim; Myitta (*Doherty*).

2634. **Scaphoideus consanguineus**, sp. n.

Vertex greyish-white, an anterior marginal and two submarginal transverse lines black, thus enclosing two anterior transverse greyish-white lines, a discal transverse reddish-testaceous patch; pronotum plumbeous, a testaceous-red transverse spot on anterior margin, and a similarly coloured transverse fascia near middle; scutellum dull yellowish-grey, a testaceous spot near each basal angle, and a central longitudinal piceous line; body beneath and legs pale ochraceous, face at base showing the edge of the black margin above and preceded by a parallel piceous line; bases of the tarsi black, posterior tibiæ spotted with black; tegmina pale ochraceous, subhyaline, the apical area paler where the veins and the subapical margin are more or less black, three small black spots on the claval suture and a transverse black line between the claval veins; vertex angularly produced, about as long as breadth between eyes.

Length incl. tegm. 4½ millim.

Hab. Calcutta (*Annandale*).

A single specimen sent me by Dr. Annandale. Closely allied to the preceding species *S. indicus*, but differs by the two blackly enclosed white lines to the vertex which is also more angulate at apex, different markings of the tegmina, &c.

2635. **Scaphoideus elegantulus**, *Melich. Hom. Faun. Ceylon*, p. 198, t. v, f. 10*a* (1903).

Vertex greyish-white, two small transverse black spots at apex and two larger testaceous spots on disk between eyes; pronotum greyish-white, a large testaceous or sometimes three small testaceous spots at anterior margin and two transverse testaceous spots on disk, in front of each of the latter are one or two black spots; scutellum greyish-white with a large testaceous spot at each basal angle and a more indistinct spot near anterior margin, two small black spots on apical area; head beneath greyish-white, face with two anterior piceous lines, followed by four discal spots and two spots on each posterior lateral margin piceous (sometimes these spots more or less coalesce); clypeus with four piceous spots, sometimes coalesced into two longitudinal lines, cheeks spotted with piceous; body beneath and legs greyish-white, bases of anterior femora and spots to posterior tibiæ piceous; tegmina pale flavescent spotted with greyish-white and black, the principal

white spots are on claval suture, disk, and costal and apical areas, the principal black spot is a discal linear one; vertex subconically produced, a little longer than breadth between eyes.

Length 4 to $4\frac{2}{3}$ millim.

Hab. Ceylon; Peradeniya (*Green*), Hambantula (*Fletcher*).

Mr. Fletcher collected his Jassids at the lights of the 'Sea-Lark' as she lay off the coast.

2636. **Scaphoideus polymitus**, sp. n.

Vertex greyish-white with an irregularly shaped black cruciform fascia extending to base, apex and lateral margins; pronotum very pale luteous, anterior margin and lateral areas black and with a central transverse testaceous fascia; scutellum creamy-white, testaceous at base, the basal angles broadly black; body beneath and legs pale ochraceous, lateral margins of sternum and

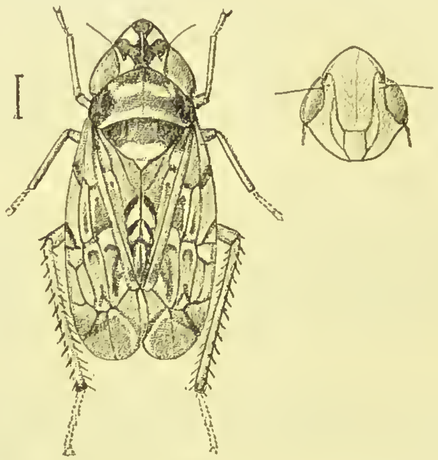

Fig. 237.—*Scaphoideus polymitus.*

abdomen spotted with piceous; posterior tibiæ inwardly spotted with black; tegmina dull ochraceous, two spots at base of inner claval margin, two on apical half of claval suture, a transverse series of three crossing disk of tegmen, and some irregularly shaped spots on apical and subapical areas greyish-white more or less margined with castaneous-brown, in some instances these castaneous margins are developed into spots; vertex subconically produced, about as long as breadth between eyes; face with an interrupted black line near basal margin, finely obliquely transversely striate, centrally longitudinally palely interrupted.

Length incl. tegm. 5 millim.

Hab. Tenasserim; Myitta (*Doherty*).

2637. **Scaphoideus russus**, sp. n.

Vertex creamy-white, the basal area to beyond eyes and a large apical spot reddish-testaceous; pronotum creamy-white, an arcuate transverse anterior marginal series of spots and tessellate markings on basal area reddish-testaceous; scutellum creamy-white, a large reddish-testaceous spot at each basal angle, the apical area somewhat ivory-white; body beneath and legs pale yellowish, basal half of abdomen more or less reddish-testaceous; tegmina dull pale ochraceous with obscure pale greyish spots with darker margins, the largest and most prominent of which are two at claval suture, a few irregularly shaped and sized on disk, two at costal area before apex, and a few very small on apical area, the veins are also mostly dark and more testaceous in hue; vertex somewhat longly triangularly produced, medially longer than broad between eyes; scutellum transversely impressed before apex, its lateral and apical margins very narrowly reddish-testaceous.

Length $4\frac{1}{2}$ millim.

Hab. Tenasserim; Myitta (*Doherty*).

2638. **Scaphoideus notatus**, sp. n.

Vertex greyish-white, centrally ochraceous, a marginal series of small piceous spots, two before each eye, four near anterior margin and two before apex, the latter branching out on each side; pronotum pale ochraceous, some darker obscure spots near anterior margin, and two ochraceous discal longitudinal spots; scutellum dull greyish with an ochraceous spot near each basal angle; tegmina pale ochraceous, the apical area paler, three small piceous spots on each claval suture; body beneath and legs pale ochraceous; lateral margins of face narrowly piceous, two minute dark spots before base of clypeus; vertex with the anterior margin subconically rounded, about as long as width between eyes; scutellum prominently transversely depressed and incised before lateral area; posterior tibiæ faintly darkly spotted.

Length 5 millim.

Hab. Ceylon; Peradeniya (*Green*).

A species to be recognized by the darkly spotted vertex.

2639. **Scaphoideus fletcheri**, sp. n.

Vertex very pale ochraceous, a central longitudinal piceous line not reaching apex, on each side of which is a testaceous spot, a transverse submarginal series of four darker spots before apex; pronotum and scutellum plumbeous-grey, the anterior margin pale

ochraceous, on which are two small testaceous spots; tegmina pale dull greyish-ochraceous, three small spots on each claval suture, one ou auterior margin of clavus near base, one in front of clavus near middle of tegmen, and three on costal margin of apical area, black; body beneath and legs very pale greyish-ochraceous; posterior tibiæ minutely spotted with piceous; vertex somewhat angularly produced, about as long as width between eyes; face unicolorous; eyes black.

Length $4\frac{1}{2}$ millim.

Hab. Ceylon; Hambantula (*Fletcher*).

The spotted tegmina is characteristic of this species.

2640. **Scaphoideus punctulatus**, *Melich.* (Eutettix) *Hom. Faun. Ceylon*, p. 191 (1903).

"Body pale shiuing yellowish; vertex as long as breadth between eyes, triangularly produced, arched above, with a shallow transverse furrow between the eyes and a pale brown, very indistinct, shadowy transverse baud; face pale yellow without markings; pronotum formed as in *Eutettix apricus*, near auterior margin an impressed bow-shaped transverse line, behind this finely transversely striped; tegmina hyaline, pale yellowish, set with black spots regularly arranged, four spots in clavus, three on terminal suture at end of claval vein and at tip of clavus, the fourth spot in claval sutural cell in the anterior third; in corium three spots, one in middle of discoidal cell and on costal margin, one at ends of both outer apical veins; veins pale yellowish, delicate; wings hyaline, strongly iridescent, traversed by yellow veins; pectus, abdomen and legs pale yellowish; posterior tibiæ with small dark brown spots at bases of spines; tips of joints of tarsi and all the claws brown." (*Melichar.*)

"Length ♂ 5 millim."

Hab. Ceylon; Henaratgoda (*fide Melichar*), Peradeniya (*Green*).

I possess a single example of this species. It is more nearly allied to *Scaphoideus* than to *Eutettix* as placed by Dr. Melichar, and there I at least provisionally locate it.

Genus **ACONURA**.

Aconura, *Leth. Ann. Soc. Ent. Belg.* xix, *Compt. Rend.* p. lxxxv (1876); *Melich. Hom. Faun. Ceylon*, p. 187 (1903).

Type, *A. jakowlefi*, Leth., from Astrakau.

Distribution. Palæarctic and Oriental Regions.

"Vertex large, triangular, auteriorly obtuse, posteriorly arcuately emarginate, in middle twice as large as pronotum; eyes large, oblong, obliquely situate; the suture uniting vertex and

front convex; clypeus quadrangular, elongate, half the length of face; pronotum short, angles rounded, anteriorly semicircular; posterior tarsi with the first joint about equal in length to the two following joints, the second about half shorter than the third; hemelytra in macropterous forms evidently appendiculated; ♀ vagina "cum coleostro" larger than abdomen, "vagina coleostro supra duplo majore." (*Lethierry.*)

Apparently connects *Cicadula* and *Thamnotettix* with *Deltocephalus*; remarkable for the very developed triangular vertex, the large, oblong, obliquely placed eyes, and the ♀ genital organs which are longer than the rest of the abdomen.

2641. **Aconura colombensis,** *Melich. Hom. Faun. Ceylon,* p. 187 (1903).

"Body short, compressed, rather broad; vertex, pronotum and tegmina shining green; vertex triangularly produced, as long as broad at base, arched, above often yellowishly coloured; head beneath brownish-yellow; face twice as long as medially broad, narrowed to clypeus, with two rows of very short brownish dashes, which are often entirely absent; "zügel" semicircular, in middle of "zügelnaht" an extremely little black dot; clypeus twice as long as broad, longly spatulate, projecting somewhat beyond the tips of the cheeks; the antennal bristles dark, very long, extending to half the length of body; eyes reddish-brown; pronotum as long as vertex and in front strongly curved, behind flatly bayed, nearly straight, the sides very short, on the disk two closely placed quadrangular impressions are visible; scutellum short, triangular, with a deepened transverse line; tegmina hyaline, green, slightly rounded behind, not covering abdominal apex; veins delicate, of the ground colour of the tegmina, terminal cells short; wings hyaline, transparent, with yellowish veins; pectus black; abdomen black, borders of segments yellow or brownish-yellow and the base of the segmental borders black; back black; legs pale brownish-yellow, tips of tarsi and claws dark; posterior tibiæ on inner side sometimes indistinctly striped with brownish, brown dots at bases of pale spines." (*Melichar.*)

"Length, ♂ $2\frac{1}{2}$, ♀ 3 millim."

Hab. Ceylon; Colombo (*fide Melichar.*)

2642. **Aconura solitaris,** *Melich. Hom. Faun. Ceylon,* p. 188 (1903).

Vertex, pronotum and scutellum brownish-ochraceous; vertex with two dark longitudinal impressed spots near base; pronotum with two transverse linear impressions near anterior margin and with a distinct central longitudinal ridge; scutellum with a transverse central impression; body beneath black; head beneath,

rostrum, legs and lateral margins of abdomen ochraceous; tegmina pale brownish, the veins, costal margin and apical area paler.

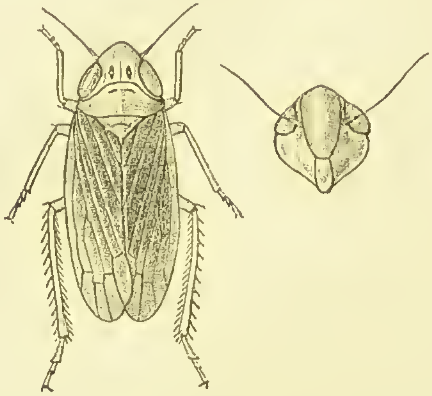

Fig. 238.—*Aconura solitaris.*

"Length ♂ 3 millim., ♀ 3½ to 4 millim."

Hab. Ceylon; Pattipola (*Mus. Hongrois*).

Dr. Horváth of the Budapest Museum kindly allowed me to see specimens of this species, one of which is here figured.

Genus DELTOCEPHALUS.

Deltocephalus, *Burm. Gen. Ins.* i, t. xiv, subg. 3 (1840); *Fieb. Verh. z.-b. Ges. Wien*, xvi, p. 506 (1866); *Edw. Tr. E. S.* 1888, p. 33; *Van Duz. Tr. Am. Ent. Soc.* xix, p. 299 (1892); *Osborn & Ball, Iow. Ac. Sci.* iv, p. 195 (1897); *Melich. Hom. Faun. Ceylon*, p. 199 (1903).

Type, *D. pulicaris*, Fall., a Palæarctic species.

Distribution. Probably almost universally distributed.

Melichar thus differentiates the genus: "Vertex pointed or obtusely angularly produced; face symmetrically hexagonal; pronotum broader than long; tegmina longer or slightly shorter than the abdomen, rounded off behind, with distinct veins usually bordered with brown to black; in the clavus a distinct transverse vein running from the outer claval vein to the claval suture."

2643. **Deltocephalus dorsalis**, *Motsch. Étud. Ent.* 1859, p. 114; *Melich. Hom. Faun. Ceylon*, p. 200, t. v, f. 13, *a–d* (1903).
Deltocephalus fulguralis, *Matsum. Termész. Füzetek*, xxv, p. 391, fig. (1902).

Vertex, body beneath and legs pale ochraceous; vertex with two obscure spots at the transverse depression and two smaller

ones near base; pronotum and scutellum greyish; pronotum with some very obscure darker longitudinal shadings; scutellum with a dark spot near each basal angle; coxæ and abdomen beneath with some dark spots; tegmina greyish, with an irregular broad oblique fuscous fascia commencing near base and continued to claval apex, its margins are deeply notched or obtusely angulate and enclose a central pale spot on claval sutures, from apex of clavus there is an oblique series of fuscous-brown spots and the apical cells are margined with the same colour, beyond middle of costal margin is a linear dark spot and there are paler fuscous

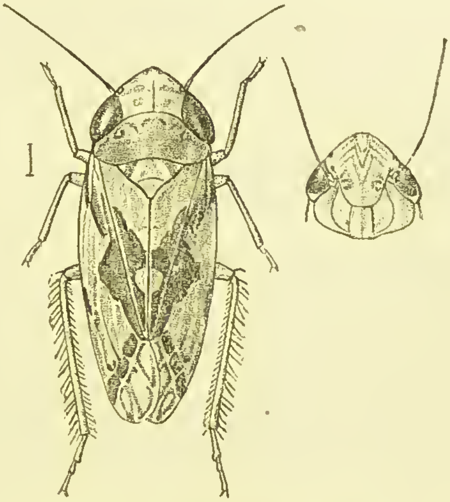

Fig. 239.—*Deltocephalus dorsalis.*

streaks between the veins and on base of claval area; face with obscure dark striations and a pale central spot at base.

Length incl. tegm. 3 to 4 millim.

Hab. Bengal; Dacca (*Lefroy*), Calcutta (*Annandale, Ind. Mus.*). Ceylon; Yatiyantota (*Green*), Peradeniya, Henaratgoda, Colombo (*fide Melichar*). Tenasserim; Myitta (*Doherty*)—Borneo; Japan.

Dr. Annandale has taken this species "at light" in Calcutta. A Tenasserim specimen is here figured.

2644. **Deltocephalus pulvisculus**, sp. n.

Very pale greyish-brown; eyes reddish-brown; vertex with six obscure darker spots at anterior margin, the one near each eye more distinct and blacker, two longitudinal dark spots on disk between the eyes and a small castaneous spot at middle of basal margin; pronotum with the anterior margin paler, this paler area posteriorly defined by a central transverse and two lateral arcuate darker lines; scutellum with a triangular darkly margined spot

near each basal angle; tegmina with the veins and minute scattered spots brownish, clavus greyish with about nine large greyish-brown spots more or less margined with piceous, some similar but smaller spots beyond clavus, the dark margins coalescing and forming two or three small piceous spots beyond central disk, apical area greyish, the margins of the cells somewhat broadly piceous, some linear piceous spots on costal margin; wings hyaline with an iridescent tint; body beneath and legs pale greyish-brown; posterior tibiæ spotted with brown, its extreme apex black, posterior tarsi spotted with black; lateral and apical margins of face and lateral margins of clypeus very narrowly and linearly black; vertex about as long as breadth between eyes, transversely linearly impressed in front of eyes, before which there is a slight transverse ridge; scutellum with a transverse impression near middle.

Length 4 millim.

Hab. Bengal; Pusa (*Lefroy*).

Mr. Lefroy sent a single example of this species.

2645. **Deltocephalus distinctus,** *Motsch. Étud. Ent.* 1859, p. 112; *Melich. Hom. Faun. Ceylon*, p. 200, t. iv, f. 21, *a*, *b* (1903).

Body above dull ochraceous; anterior margin of vertex black with five white spots; eyes piceous; tegmina with most of the veins whitish but in all cases a little paler than the tegminal surface, with two or three blackish macular shadings (as in the specimen here figured), though these are inconstant, interior of the

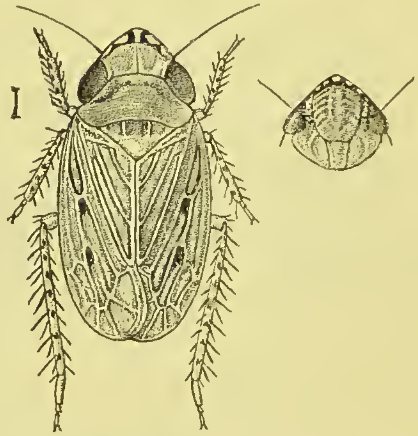

Fig. 240.—*Deltocephalus distinctus.*

apical cells paler; anterior margin of head beneath showing the extremities of the black and white markings above; face with curved transverse darker markings medially palely longitudinally

interrupted; legs finely spotted with piceous, the tibial spinules piceous; vertex broadly subtriangular, about as long as pronotum; scutellum with two slightly raised white lines at base, which is a little darker than its apical area; face slightly convex.

Length $3\frac{1}{4}$ to 4 millim.

Hab. Ceylon; Colombo (*fide Motschoulsky*), Peradeniya (*Green*), Henaratgoda (*fide Melichar*).

Motschoulsky makes no mention of the dark spots to the tegmina, and these clearly constitute only an inconstant character.

2646. **Deltocephalus lætus,** *Melich. Hom. Faun. Ceylon,* p. 202 (1903).

"Vertex triangularly produced, above slightly arched and greyish-white like the pronotum and scutellum, behind the eyes is a broad transverse band running from one eye to the other and sometimes interrupted in the middle, the anterior border of pronotum and the base of scutellum orange-red; head beneath somewhat long, brownish-yellow, on each side of face three or four very short suffused transverse lines; eyes brown; tegmina extending in the ♂ to tip of abdomen, in ♀ not covering same, hyaline dirty yellowish-brown with rather paler tender veins and a not always distinct orange-yellowish longitudinal stripe near the costal border which is pale translucent; membrane and apical border brownish, the short terminal cells usually distinctly white from a dark ground; wings smoky-brown; pectus and abdomen brown or black, more or less strongly darkly marked; legs brownish-yellow, posterior tibiæ on the inside with black longitudinal stripes." (*Melichar.*)

"Length, ♂ $2\frac{1}{2}$ millim., ♀ $3\frac{1}{4}$ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

2647. **Deltocephalus oneratus,** *Melich. Hom. Faun. Ceylon,* p. 202 (1903).

Head and pronotum ochraceous; vertex with two large black transverse spots on anterior margin divided by a pale central line, which more narrowly is continued to base and on basal area is margined on each side with black, a small dark spot before the eyes which are inwardly margined with very pale ochraceous; pronotum with a large prominent black spot on each side, two central black lines on basal area, and a minute black spot near middle of anterior margin; scutellum very pale ochraceous, with a central longitudinal black spot widened at anterior margin where it contains two small pale spots; tegmina dull greyish with piceous markings, a prominent oblique greyish streak at base, another near middle, and shadings of a similar colour on apical

area, the other markings are better explained by the figure; apices of the tibiæ infuscated, posterior tarsi stramineous, their

Fig. 241.—*Deltocephalus oneratus.*

apices black; vertex subtriangular, about as long as the pronotum.

I only know this species by a single carded ♂ type kindly lent me by Dr. Horváth, and which is here figured.

Length $2\frac{1}{2}$ to 3 millim.

Hab. Ceylon; Bandarawella (*Mus. Hongrois*).

2648. **Deltocephalus montanus**, sp. n.

Pale greenish-ochraceous; vertex with the anterior margin narrowly black, a black spot at apex, a transverse piceous-brown fascia medially interrupted between the anterior margins of the eyes and two small spots of the same colour near base; eyes piceous; pronotum with an irregular transverse series of impressed piceous-brown spots near anterior margin, scutellum somewhat paler with two minute dark spots on basal margin; face beneath with the basal margin piceous, and with transverse and brown lines medially longitudinally interrupted, the lateral margins of the interruption piceous; clypeus with a transverse piceous line on each side of basal margin, the central area more or less piceous; sternum and basal area of abdomen more or less black; legs greenish-ochraceous, posterior tibiæ with a longitudinal piceous stripe; tegmina subhyaline, the veins fuscous, the costal margin distinctly paler, in the ♀ not nearly reaching the apex of the abdominal appendage; vertex subtriangularly produced, as long as breadth between eyes, prominently transversely depressed in front of eyes; scutellum medially discally transversely impressed; apex of abdomen longly extending beyond apices of tegmina.

Length ♀ $2\frac{1}{2}$ to 3 millim.

Hab. Simla Hills; Matiana (*Annandale*).

2649. **Deltocephalus erebus**, sp. n.

Vertex, pronotum and scutellum shining black; vertex with an oblique arcuate yellow spot on each side of apex and some obscure spots at base, eyes black with their margins ochraceous; anterior and posterior margins of pronotum and the lateral margins of scutellum very narrowly ochraceous; tegmina shining black, the costal margin and the apical area dull ochraceous subhyaline, in the dark area the veins are slightly paler and more brownish-ochraceous, in the pale areas the veins are distinct and piceous-brown; face shining black, the anterior margin (broken centrally), a broken discal medial longitudinal line, and lateral marginal spots ochraceous; clypeus black with an ochraceous spot on each lateral margin near base, margins of cheeks narrowly ochraceous; legs ochraceous, femora (excluding apices), longitudinal streaks to tibiæ, spots to tarsi and posterior tibiæ, black; vertex strongly and broadly transversely impressed between the anterior margins of the eyes; pronotum finely transversely striate, and in some specimens with obscure ochraceous spots near anterior margin; scutellum deeply arcuately transversely impressed at middle.

Length 3 millim.

Hab. Simla Hills; Matiana (*Annandale*).

The distinct coloration and the broad deep transverse impression to the vertex are characteristics of this species.

2650. **Deltocephalus thoracicus**, sp. n.

Vertex subtriangular, as long as space between eyes, very pale ochraceous with a transverse darker suffusion between eyes, two elongate spots at apex and two rounded spots near base testaceous-red; pronotum pale ochraceous with two prominent discal testaceous-red longitudinal fasciæ, in some specimens these fasciæ not only coalesce, but thus assume a transverse fasciate appearance; scutellum pale testaceous with a reversed ⊥-shaped discal testaceous-red mark; abdomen above piceous, the posterior margin of the penultimate and apical segments greyish-white, the apical segment pale brownish; head beneath ochraceous, face with arcuate testaceous-red transverse striæ, medially longitudinally palely interrupted; sternum and legs ochraceous, anterior and intermediate legs and the posterior tibiæ spotted with testaceous-red, posterior femora streaked with testaceous-red; tegmina in ♀ much shorter than abdomen, subhyaline, the veins prominent and pale greyish, with fuscous-brown macular suffusions between many of the veins, the most prominent being on the costal area, some small marginal spots on the apical margin.

Length ♀ 3 millim.

Hab. Calcutta (*Indian Mus.*).

2651. **Deltocephalus rufolineatus,** *Melich. Hom. Faun. Ceylon,* p. 203 (1903).

"Pale yellowish, shining; vertex triangularly produced, with two red longitudinal lines which run parallel to each other from the margin along the inner borders of the eyes and backwards on the pronotum; on pronotum itself is visible a third red line which runs from the impressed transverse line of the pronotum to the tip of the scutellum; tegmina translucent, the veins delicately whitish, the apical margin of the outer apical cell bordered with brown; face, underside and legs pale yellow." (*Melichar.*)

"Length ♀ $4\frac{1}{2}$ millim."

Hab. Ceylon (*fide Melichar*).

2652. **Deltocephalus infirmus,** *Melich. Hom. Faun. Ceylon,* p. 203 t. v, f. 11 (1903).

Pale ochraceous; vertex with two sometimes united spots at apex, two larger somewhat transverse spots on disk, and a spot-like suffusion near each eye dark ochraceous, from between the discal spots to base a central piceous line; pronotum with four dark ochraceous broad longitudinal fasciæ; face with transverse dark ochraceous lines medially palely longitudinally interrupted, the basal margin distinctly pale; body beneath brownish-ochraceous, sometimes more or less piceous, the apex of the abdomen pale ochraceous; legs ochraceous; tegmina subhyaline, the veins prominent and either ochraceous or greyish-ochraceous, two small spots on basal area and the discal cellular interspaces more or less pale piceous-brown; apical cells more or less distinctly inwardly margined with pale piceous-brown; vertex subtriangularly produced, almost as long as breadth between eyes, transversely, centrally, discally depressed; eyes greyish-brown; scutellum with a central discal transverse impressed line, a dark marginal spot near each basal angle and with a central broad longitudinal dark ochraceous fascia; posterior tibiæ with a central longitudinal piceous line.

Length 3 to 4 millim.

Hab. Simla Hills; Matiana, Phagu (*Annandale*). Bengal; Pusa (*Lefroy*). Ceylon; Peradeniya (*Green*).

This species varies somewhat in markings, though the general characteristics described above remain constant; in one specimen there is a distinct dark spot on each side of the pronotum behind the eyes, in another there is a looped dark line on each side of the apical margin of vertex. Melichar gives the dimensions as $2\frac{1}{2}$ to 3 millim., but my series of specimens exhibit a greater size.

2653. **Deltocephalus porticus,** *Melich. Hom. Faun. Ceylon,* p. 204, t. vi, f. 9, *a–d* (1903).

"A small species of yellow colour; vertex as long as breadth

between the eyes, anteriorly angulated, in ♀ with a truncated tip, in ♂ more acutely angular, arched above, yellow, with a black triangular spot on the disk which is sometimes wanting or very small; on the transition from vertex to front are placed the ocelli which are distinctly visible as black spots; head beneath as long as breadth between cheek angles; face arched, without pattern, a deep black longish spot below antennal cavities, eyes brown; antennæ inserted in shallow pits, basal joint short, second joint twice as long, antennal bristle long; pronotum as long as vertex,

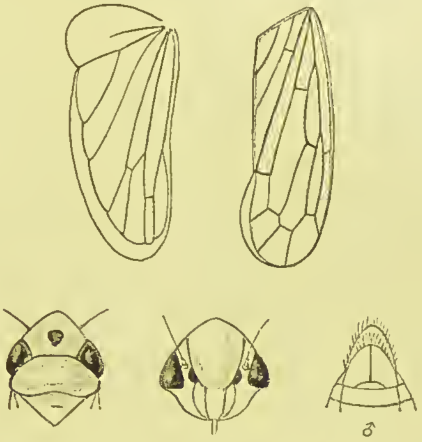

Fig. 242.—*Deltocephalus porticus.*

arched in front, flatly bayed behind, arched above with a bow-like transverse line near anterior margin; scutellum yellow like pronotum, with a short depressed transverse line in middle; tegmina hyaline, translucent, rendered greyish-white by the reflection of the black dorsum, with very delicate veins, the terminal marginal vein brownish, marginal appendage present; wings hyaline with yellowish-white veins; pectus and abdomen yellow; dorsum black, segmental borders narrowly yellow; legs yellow, all the claws dark." (*Melichar.*)

"Length ♂ $2\frac{1}{2}$ millim., ♀ $3\text{–}3\frac{1}{4}$ millim."

Hab. Ceylon; Peradeniya, Henaratgoda, Colombo (*fide Melichar*).

2654. **Deltocephalus bimaculatus**, *Melich. Hom. Faun. Ceylon*, p. 204 (1903).

"Vertex as long as breadth between eyes, in front angularly produced, with two large transverse black spots which are situate in the neighbourhood of the front high angles and between which there is a fine shortened longitudinal line; face somewhat long, distinctly longer than broad, narrowed to clypeus, unmarked, in the antennal cavities there is a large black spot partly extending

to the margin of face; clypeus half as long as face, perceptibly narrowed to the apex; cheeks broad; "zügel" semicircular, enclosed by the cheeks; face shining saturated yellow; vertex, pronotum and scutellum yellow; pronotum as long as vertex, anteriorly strongly rounded, posteriorly shallowly concave, the sides short, the disk weakly arched; in middle of scutellum a depressed transverse line; tegmina longer than the abdomen, hyaline, dirty-white, with delicate whitish veins; wings hyaline; underside and legs yellow." (*Melichar.*)

"Length ♀ 2½ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

2655. **Deltocephalus intermedius,** *Melich. Hom. Faun. Ceylon,* p. 205 (1903).

"Head, pronotum and scutellum greenish-yellow; vertex obtusely triangularly produced, unmarked; below the antennal cavities close to frontal suture is a black longitudinal mark; tegmina hyaline, greyish or dirty-white, with delicate white veins; wings hyaline; pectus and abdomen black; margins of segments very narrowly yellow; legs greenish-yellow."

"*D. intermedius* is very similar to *D. porticus* and *D. bimaculatus.* In all three species the black longitudinal mark is present at the antennal cavities; in *D. porticus* there is on the middle of vertex a triangular black spot, while on *D. bimaculatus,* which is smaller than the two other species, there are two trausverse black streaks on the vertex between the front angles of the eyes; in *D. intermedius* the underside, with the exception of the legs, is black, in *D. porticus* and *D. bimaculatus* yellow, and only the dorsum black." (*Melichar.*)

"Length ♂ & ♀ 2 millim."

Hab. Ceylon; Peradeniya, Henaratgoda (*fide Melichar*).

2656. **Deltocephalus brunnescens,** sp. n.

Brownish-ochraceous; vertex with two transverse linear spots between the eyes, from between which a dark longitudinal line extends to base, and a marginal series of four brown spots; pronotum (excluding the anterior marginal area) darker brownish, the anterior marginal area bordered with irregular greyish posteriorly brown spots; abdomen above piceous, the segmental margins and apex brownish-ochraceous; body beneath and legs ochraceous; face with brown transverse striæ medially interrupted, the medial interruption longitudinally margined with brown; anterior and intermediate legs annulated with brown; tegmina pale ochraceous-brown, the veins prominent, broadly greyish, margined with darker brown, the apical cells greyish broadly spotted with pale fuscous; vertex subconvexly angulate, centrally

about as long as breadth between eyes which are piceous and usually posteriorly brownish, the vertex distinctly depressed behind middle.

Length 4 millim.

Hab. Bengal; Pusa (*Lefroy*). Bombay Pres.; Surat (*Lefroy*).

To be recognized by the pale brownish coloration, the annulated anterior and intermediate legs, the markings of the vertex, &c.

2657. **Deltocephalus scriptus**, sp. n.

Vertex pale ochraceous, a looped brown line on each side of anterior margin, two transverse linear piceous spots on disk from which a central piceous line proceeds to base; pronotum pale ochraceous with darker shadings, two large black spots on anterior margin between the eyes, two large oblique spots on each lateral area, at middle of anterior margin a cordate pale space containing two dark foveate spots; scutellum pale ochraceous with a large brownish spot near each basal angle, three small dark spots before the central transverse impression, two behind it, and one on each of its extremities; tegmina brownish-testaceous much mottled with greyish-white, particularly on claval suture, and transversely near base and before apical area, a large elongate subhyaline spot near middle of costal area, apical area with all the cellular veins greyish-white and a whitish spot in each of the three inner apical cells; face with the anterior half pale ochraceous, the posterior area black, the first with the anterior margin and two small central spots castaneous more or less interrupted with ochraceous; body beneath and legs pale ochraceous, a large spot on each cheek, large spots to anterior and intermediate femora, small spots and apex to posterior tibiæ and spots to posterior tarsi black; abdomen beneath imperfectly seen in typical specimen, but apparently more or less piceous on lateral margins; vertex about as long as broad between eyes, centrally broadly transversely impressed between anterior margins of eyes, the impression not reaching the lateral margins; scutellum finely transversely impressed near middle.

Length 4 millim.

Hab. Ceylon; Weligama (*Fletcher*).

2658. **Deltocephalus? transparipennis**, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 100 (1863); *Melich. Hom. Faun. Ceylon*, p. 203 (1903).

"Elongate, posteriorly slightly arcuately attenuated, shining, palely rufous-testaceous; body underneath and legs paler; eyes oblong, granulose, anteriorly white, posteriorly black; head and pronotum subfuscous, longitudinally varied; tegmina, dirty-white somewhat transparent, anteriorly and laterally subrugulose, veins interiorly piceous, exteriorly somewhat white; head transversely

triangular on each side, anteriorly a ferruginous spot; clypeus very slightly produced, somewhat rounded; face shining, rufous-testaceous, subconvex; eyes convex, posteriorly prominent; pronotum a little narrower than vertex, transverse, arcuate, the posterior angles rounded; mesonotum trapezoidal, on each side banded with ferruginous; scutellum triangular, shining; tegmina a little broader than pronotum, elongate, somewhat dilated medially, fuliginous, moderately nebulous." (*Motschoulsky.*)

"Length $\frac{4}{5}$ l.; lat. cap. $\frac{1}{5}$ l."

Hab. Ceylon; Newara-Elia (*fide Motschoulsky*).

2659. **Deltocephalus ? variegatus**, *Motsch. Étud. Ent.* 1859, p. 112; *Melich. Hom. Faun. Ceylon*, p. 204 (1903).

"Somewhat near *Jassus subfuscus* but narrower; beneath black with some white spots on the middle and lateral margins, and four transverse lines interrupted in the middle of the same colour on the face; the dominant colour above is a shining greyish-white, a little perlaceous and speckled by small piceous spots, these are also found on all the nervures; on the face there are fine depressed punctures and a small medial longitudinal line; on the pronotum there are 1–4 yellow spots, and on the scutellum three others of which the central is enlarged posteriorly without reaching the apex; legs greyish-white with the base of the femora black." (*Motschoulsky.*)

Hab. Ceylon; Newara-Elia (*fide Motschoulsky*).

2660. **Deltocephalus elongato-ocellatus**, *Motsch. Étud. Ent.* 1859, p. 113; *Melich. Hom. Faun. Ceylon*, p. 201 (1903).

"Of the form and shape of *D.? variegatus*, but with the nervures of the tegmina white and their interspaces margined with brown, more or less punctured; the form of the eyes as in *D. ocellaris* but much more elongated; body beneath dirty testaceous-white, with the face faintly browner and transversely wrinkled by seven white lines medially interrupted, where there is also visible a longitudinal line of the same colour; the last segment of the abdomen exhibits some small black spots and all its upperside is of the same colour." (*Motschoulsky.*)

Hab. Ceylon; Colombo (*fide Melichar*).

Division *CHIASMUSARIA.*

In this division the vertex is more or less angularly produced in front of the eyes, but in length variable, either as long as or considerably shorter than the breadth between eyes; the tegmina are apparently nearly always short and abbreviated.

Synopsis of Genera.

A. Vertex as long as breadth between eyes; posterior margins of tegmina rounded .... CHIASMUS, p. 391.
B. Vertex shorter than breadth between eyes; posterior margins of tegmina truncate.
  a. Vertex about half the length of breadth between eyes, as long as pronotum; posterior angles of tegmina acute ...... DORATULINA, p. 392.
  b. Vertex more than half as long as breadth between eyes, longer than pronotum; posterior angles of tegmina rounded .... KARTWA, p. 394.

Genus CHIASMUS.

Chiasmus, *Muls. & Rey, Ann. Soc. Linn. Lyon*, 1855, p. 215; *Melich. Hom. Faun. Ceylon*, p. 163 (1903).
Atractotypus, *Fieb. Rev. Mag. Zool.* (3) iii, p. 392 (1875); *Melich. Cicad. Mitt.-Eur.* p. 184 (1896).

Type, *C. translucidus*, M. & R., a Palæarctic species.
Distribution. Palæarctic and Oriental Regions.

"This genus is distinguished by the acutely angulated produced and marginally sharpened vertex; front with a flattened longitudinal furrow at the point; the tegmina are usually short, parchment-like, not covering the abdomen, rarely developed, in which case they are thin." (*Melichar.*)

As at present I only know this genus from the Oriental Region by a species described by Dr. Melichar, I have thought it best to give his generic diagnosis.

2661. **Chiasmus uzelii**, *Melich. Hom. Faun. Ceylon*, p. 164, t. iv, f. 7, *a* (1903).

"Body brownish-yellow; vertex triangularly produced, between eyes as broad as long, pointed at anterior border, flattened above with a black quadrangular mark at tip in which is a short white apical dash, behind this two large quadrangular black spots which are rectangularly margined on the inner side and border, a paler middle line not projecting behind to the front border of the pronotum; eyes sessile, longly oval, brown; face as long as the breadth between the angles of the cheeks, pale yellowish with a brown (♀) to black (♂) transverse band which runs in the middle of the face from one eye to the other and colours the antennal cavities black; antennæ pale yellowish; on the upper margin of the face are four brown or black marginal spots, of which the inner ones are approximate on the tip of the face and commonly coalesce into a blotch; pronotum half as long as vertex, very finely transversely stippled, white with two black dots in the middle near the anterior margin and with several coalescing black

dots behind each eye; scutellum triangular, rusty-brown, with a fine transverse dark line in the middle, or quite black in ♂; tegmina abruptly shortened, together rather broader than long, behind separately broadly rounded off, extremely finely transversely wrinkled and without a trace of venation, rusty yellow, broadly apically margined with white; abdomen almost twice as long as tegmina, pointed behind, arched above, rusty-yellow, the fourth dorsal segment white, the fifth black, the last with two brown longitudinal dashes, the rusty-yellow anal tube margined

Fig. 243.—*Chiasmus uzelii.*

with white; propectus spotted with brown, middle and hind pectus and abdomen rusty-yellow; legs pale yellow, the front femora adorned with indistinct brown dots, posterior tibiæ on inner side with slight brown-coloured longitudinal stripes, bristles of posterior tibiæ pale yellow, claws brown."

"Macropterous form, ♀. Tegmina perfectly developed, extending to apex of ovipositor, hyaline, so that the dark colour of the body shines through, and with delicate whitish veins." (*Melichar.*)

"Length ♂ & ♀ $2\frac{1}{2}$ to $2\frac{3}{4}$ millim.

Hab. Ceylon; Peradeniya, Colombo, Pattipola (*fide Melichar*).

I have not seen this species and reproduce Melichar's figure and description.

Genus DORATULINA.

Doratulina, *Melich. Hom. Faun. Ceylon*, p. 198 (1903).

Type, *D. jocosa*, Melich.

Distribution. Ceylon.

"Vertex as in *Deltocephalus* triangularly produced, its anterior margin rounded, not cornered; head beneath hexagonal, face narrowed to the clypeus; pronotum shorter than the vertex; tegmina leathery, short, straightly truncated behind, veins scarcely perceptible; wings absent."

"Similar in structure to the genus *Doratura*, but differs from it in the form of the vertex." (*Melichar.*)

2662. **Doratulina jocosa**, *Melich. Hom. Faun. Ceylon*, p. 199, t. iv, f. 6, *a*, *b* (1903).

"Body pale yellowish; head triangularly produced; vertex as long as breadth between the eyes, in front rounded to the face, above arched, a short depressed middle line on the back of the neck and two round black spots on the disk; head beneath rather longer than the breadth between the cheek-angles; face somewhat long, very slightly narrowed to clypeus which is elongate, quadrangular, twice as long as broad, rounded off at end; 'zügel' semicircular, on middle of 'zügelnaht' a small black spot, on cheeks below antennal cavities a large black spot; pronotum one-fourth shorter than vertex, in front bow-shaped, rounded, behind nearly straight, on disk arched, on posterior half very finely transversely streaked, in front with an indistinct impression; scutellum short, triangular, with a short depressed transverse line; tegmina short, only covering abdomen at base, posteriorly straightly

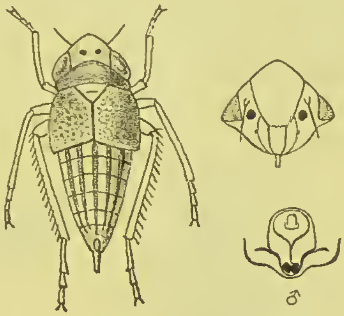

Fig. 244.—*Doratulina jocosa*.

truncate with rounded-off angles, finely transversely wrinkled, pale yellow, the longitudinal veins to apical margin simple, pale brown, no terminal cells; abdomen conical, pale yellow, with five pale brown longitudinal stripes; legs pale yellow, all the tibiæ adorned with pale brown longitudinal stripes and at apex of posterior femora and actually on the inner and lower side of same a black spot, posterior tibiæ set with pale yellow bristles." (*Melichar.*)

"Length, ♂ 2 millim., ♀ $2\frac{1}{2}$ millim."

Hab. Ceylon; Henaratgoda, Colombo (*fide Melichar*), Peradeniya (*Green*).

Genus KARTWA, nov.

Type, *K. mustelina*, Dist.
Distribution. Bengal.

Vertex broadly angulate, nearly twice as broad as long, the disk a little foveately depressed, the margins reflexed; pronotum transverse, broad, shorter than vertex; scutellum rather small, subtriangular, the lateral margins a little sinuate; tegmina abbreviated, about reaching base of abdomen, their posterior margins truncate, lateral margins nearly straight, posterior angles obtusely rounded; face longer than broad, basal margin angulate, about twice as long as clypeus, which is broad and somewhat truncate at apex; tibiæ finely spinulose.

2663. **Kartwa mustelina**, sp. n.

Vertex, pronotum and tegmina pale tawny-brown; abdomen above testaceous-brown, minutely spotted with ochraceous, beneath black with the connexivum ochraceous; head beneath, sternum and legs pale tawny-brown or dull ochraceous; vertex subtriangularly rounded, transversely depressed between eyes, a little upwardly reflexed towards apex, a piceous spot at apex (sometimes medially interrupted), a minute piceous spot on each lateral margin near antennæ, between which there is an arcuate dark fascia; eyes piceous-black; pronotum much shorter than vertex, transverse, arched, a dark spot on each lateral margin behind eyes; scutellum subtriangular, smooth, with two small dark discal spots; tegmina short, just covering base of abdomen, their apical margins truncate; face concolorous, the antennal cavities piceous-brown, two small piceous spots at anterior margin and the small lateral marginal piceous spots above visible beneath.

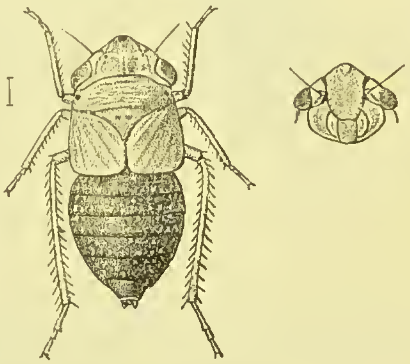

Fig. 245.—*Kartwa mustelina*.

Length $2\frac{1}{2}$ millim.
Hab. Calcutta (*Ind. Mus.*).

Division *PARALIMNUSARIA.*

Vertex somewhat subacutely produced in front of eyes, about or nearly twice as broad between eyes as long; ocelli on the anterior margin very near the eyes.

I include two genera in this division.

Synopsis of Genera.

A. Face broad, its margins sinuate before eyes; cheeks not foveate behind eyes .... PARALIMNUS, p. 395.

B. Face long and narrow, its margins not sinuate; cheeks strongly foveate on each side behind eyes .... ALITURUS, p. 398.

Genus PARALIMNUS.

Paralimnus, *Matsum. Termész. Füzetek,* xxv, p. 386 (1902).

Type, *P. fallaciosus*, Matsum., from the Japanese Islands.

Distribution. Eastern Palæarctic, Oriental, Malayan and Australasian Regions.

Vertex somewhat subacutely produced in front of eyes, about twice as broad as long, ocelli on the anterior margin very near eyes, an anterior submarginal and a central longitudinal raised line; face longer than broad, sinuate near eyes, the base subacutely rounded, about twice as long as clypeus; pronotum longer than vertex, deflected on each side, arcuately transversely impressed before anterior margin, anterior margin produced between eyes, posterior margin a little concavely sinuate; scutellum broad, basal broader than length of either lateral margin, transversely impressed before apex; legs moderate, tibiæ strongly spinulose; tegmina longer than the abdomen, four apical cells, three anteapical cells, a transverse vein on disk.

Matsumura describes the apical cells of the tegmina as three in number, according to my view they are four, a difference presumably owing to the way in which these cells are individually regarded.

2664. **Paralimnus lateralis,** *Walk.* (Bythoscopus) *J. Linn. Soc., Zool.* i, p. 173 (1857).

Thamnotettix alboguttulatus, *Melich. Hom. Faun. Ceylon,* p. 184 (1903); *id. Wien. ent. Zeit.* xxiv, p. 302 (1905).

The following is Melichar's description of his *T. alboguttulatus*, which clearly appears to apply to Walker's *lateralis*.

"Rusty-brown, a little shining; vertex in middle as long as behind, between the eyes broad, in front angularly produced, above arched, the disk somewhat obliquely bent with a middle line running to the tip, on border a transverse line running from one eye to the other pale yellowish-white margined above and below by a black line, close to it a similar narrow arched transverse line

likewise margined below with black, while below the first mentioned line a pale narrow stripe is visible on the face; face longer than the breadth between the angles of the cheeks, narrowed to clypeus, at the end of the facial suture are the ocelli near the inner margins of eyes, cheek angles rounded off; clypeus twice as long as broad, spatulate; the whole head beneath unicolorous, rusty-brown; antennæ bright yellow, antennal bristles dark, inner margins of eyes roundly concave at antennal pits; pronotum one-quarter longer than vertex, arched at anterior margin, flatly bayed at

Fig. 246.—*Paralimnus lateralis.*

posterior margin, above arched, near front margin a slight bow-shaped transverse line on which are two small yellow spots on each side; scutellum rusty-brown, on each side three pale spots representing the angles of the triangle, in basal angle rusty-brown and therefore somewhat indistinguishable; tegmina rather long, passing tip of abdomen, rusty-brown, rather more shining than the vertex and pronotum, with similarly coloured not strongly prominent veins, upper surface set with white hyaline round spots which run in regular order and lie between the veins, in clavus three spots at terminal border between ends of veins, a fourth spot in sutural cell near base, on corium the spots are more quadrangular and are so arranged as to lie opposite to each other in angles of cells, at costal border behind middle is a larger hyaline not sharply defined spot in which the brown veins are distinctly prominent, at ends of two outer spots are found at each a pitchy-brown spot darker outside, the apical border itself pale yellowish-white; wings weakly smoky-brown, with dark veins; pectus and abdomen rusty-brown, ventral segments narrowly bordered with pale yellowish-white, outer border of connexivum more broadly bordered, sometimes reddish; legs rusty-yellow, posterior tibiæ

dark with brown bristles at corners, posterior tarsi black or dark piceous-brown, only base of first joint and the third joint white; claws yellow." (*Melichar.*)

Length incl. tegm., ♂ & ♀ 5 to 6 millim.

Hab. Bombay; Surat (*Lefroy*). Bengal; Pusa, Jamalpur (*Lefroy*). Ceylon; Peradeniya, Maskeliya (*Green*).—Borneo; Sarawak (*Wallace, Brit. Mus.*). East Africa (*fide Melichar*).

2665. **Paralimnus albomaculatus**, sp. n.

Vertex dull brownish-testaceous, apical margin black anteriorly and posteriorly narrowly bordered with white; pronotum and scutellum fuscous-brown, the first with some obscure whitish spots near anterior margin, scutellum with a piceous spot at each basal angle; body beneath and legs pale dull ochraceous; head beneath and apical area of abdomen fuscous-brown, posterior tibiæ and tarsi black, the last with the base and apex dull ochraceous; tegmina fuscous-brown with a bronzy tint, a large slaty-grey elongate spot about middle of costal area, two large greyish-white cellular spots margined with piceous near apex of costal area, a number of small rounded greyish-white spots of which the principal are three on claval suture, one before middle of inner claval boundary, two above and at each end of the slaty-grey spot, and a cluster of four or five before the apical area, the last paler with its margin broadly piceous; basal margin of face black posteriorly narrowly bordered with yellowish-white; eyes narrowly margined with pale yellowish; vertex almost twice as broad as long.

Length 5 millim.

Hab. Ceylon; Madulsima (*Green*).

2666. **Paralimnus? umbratus**, *Melich.* (Thamnotettix) *Hom. Faun. Ceylon*, p. 185 (1903).

"Form and size similar to *P. lateralis*, but body narrower, the whole surface unicolorous, rusty-brown, strongly shining; vertex just as in *P. lateralis*, but instead of the pale transverse line on the margin of the vertex, there is a pale longitudinal spot at tip of vertex and on each side of it at border of same, two pale transverse spots; on the disk itself are two pale longitudinal streaks in middle of nape; face pale rusty-brown, unicolorous, on each side a row of short brown transverse lines; pronotum and scutellum without markings; tegmina unicolorous, shining, the veins very delicate almost colourless, the membrane slightly yellowish, translucent; wings slightly clouded, with dark veins; pectus, abdomen and legs yellowish." (*Melichar.*)

"Length ♀ 5 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

I do not know this species.

Genus ALITURUS, nov.

Type, *A. gardineri*, Dist.

Distribution. Laccadive Archipelago.

Vertex broad, depressed, angularly rounded in front, foveately impressed on each side between eyes, which are large and obliquely eover the anterior angles of the pronotum; ocelli indistinct, near anterior margin and near eyes; face globose, strongly narrowed to clypeus, which is slender and a little more than half the length of face, cheeks rounded; pronotum transverse, longer than vertex, lateral margins nearly straight, anterior margin convex, posterior margin subtruncate; scutellum broad, subtriangular, lateral margins shorter than breadth of basal margin, transversely impressed near middle; legs somewhat slender, posterior tibiæ longly spinulose; tegmina opaque, longer than abdomen, veins imperfectly visible.

This genus is founded on a single specimen collected by Mr. Gardiner on the Laecadive Archipelago. As this fauna is evidently composed of migrants, prineipally from British India, we may expect to receive other specimens from the western area of that peninsula.

2667. **Aliturus gardineri**, sp. n.

Above glossy-black; tegmina with a white spot in each claval area near apex, the apical area with a number of white spots of different shapes and sizes; body beneath black; legs pale stramineous; clypeus centrally stramineous; vertex very finely and

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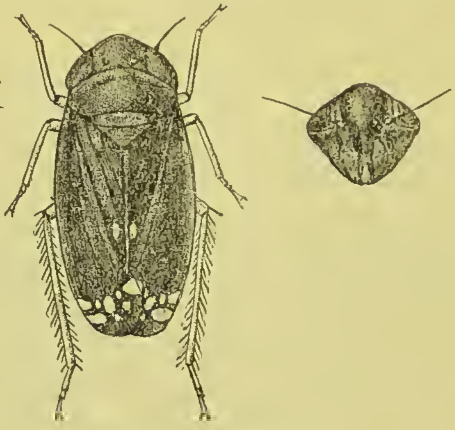

Fig. 247.—*Aliturus gardineri.*

indistinctly wrinkled, a distinct foveation on each side between eyes; pronotum very finely transversely striate; scutellum indistinctly transversely striate before the central incised impression; cheeks deeply foveate on each side behind eyes.

Length 3 millim.

Hab. Laccadive Archipelago; Minikoi (*Gardiner*).

Subfamily VI. TYPHLOCYBINÆ.

Typhlocybidæ, *Kirsch. Cicad. v. Wiesbd.* p. 16 (1868).
Typhlocybides, *Sahlb. Cicad.* p. 69 (1871).
Typhlocybæ, *Fieb. Rev. Mag. Zool.* (3) iii, p. 405 (1875).
Typhlocybini, *Puton, Cat. Hem. Pal.* p. 86 (1886); *Woodw. Psyche*, v, p. 211 (1890).
Typhlocybina, *Van Duzée, Tr. Am. Ent. Soc.* xix, p. 298 (1892); *Oshan. Verz. Pal. Hem.* ii, *Homopt.* i, p. 187 (1906).
Typhlocybinæ, *Gillette, Proc. U. S. Nat. Mus.* xx, p. 710 (1898).
Eupteryginæ, *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 356 (1906).

The Typhlocybinæ are readily separated from all the other subfamilies of the Jassidæ by the four longitudinal veins or sectors of the tegmina which run to the transverse veins defining the apical cells without branching, so that there are no anteapical cells, and also by the absence of supernumerary cells in the wings (*Gillette*). Tegmina usually without appendix. Notwithstanding these clear characteristics there is still diversity of opinion as to the position of some genera in this subfamily. Thus Kirkaldy, in 1900, founded his genus *Nirvana* which he stated "may be placed provisionally near the American genus *Spanbergiella*, Sign., a genus undoubtedly allied to *Hecalus* and placed in the Jassinæ (*Acocephalides*, Puton)." Melichar and myself (*ante*, p. 281) have followed this direction of its founder in the placing of *Nirvana*. But Kirkaldy has recently altered his opinion (Rep. Exp. Stat. Haw. Plant. Assoc., Bull. iii, p. 68 (1907)), and has now stated that "it is very likely to be an Eupterygiue genus," or in other words to belong to the Typhlocybinæ.

In giving synopses of the genera I am confining myself to those here enumerated. As Edwards remarks, and in agreement with other writers, "the genera are readily separable by the characters derived from the venation of the elytra and wings," but with scanty material the wing venation cannot always be exposed.

Division *EMPOASCARIA*.

Sectors of posterior wings ending in a marginal vein.

I have included *Homa* in this division, but have very imperfectly seen the wing venation in the unique typical specimen.

Synopsis of Genera.

A. Pronotum shorter than vertex .... HOMA, p. 400.
B. Pronotum as long or considerably longer than vertex.
  a. Face open or not closed above .... EMPOASCA, p. 401.
  b. Face closed above, the frontal sutures connected below by an acute angle, or bow-shaped with one another................ HELIONA, p. 407.

Genus **HOMA**, nov.

Type, *H. insignis*, Dist.

Distribution. Ceylon.

Vertex subquadrate, longer than breadth between eyes at base, rounded but very slightly produced in front of eyes, which are almost as long as the vertex and do not project over the anterior angles of the pronotum; face long, broad, narrowing to clypeus which is short and broad; pronotum shorter than vertex, transverse, a little rounded in front, the lateral margins nearly straight; scutellum broad, subtriangular; legs slender, posterior tibiæ strongly spinulose and slightly curved; tegmina long, much longer than abdomen, apical cells three, large, and subequal in length.

2668. **Homa insignis**, sp. n.

Vertex, pronotum and scutellum scarlet-red; vertex at inner margins of eyes narrowly greyish-red; face and clypeus red, apical

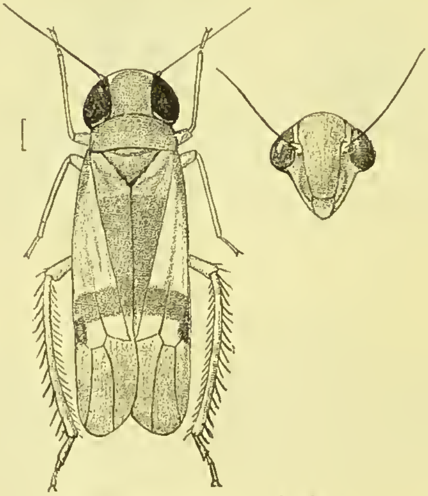

Fig. 248.—*Homa insignis.*

margin of the latter pale yellowish; sternum and legs stramineous; abdomen beneath more or less pale scarlet-red, its apical area

stramineous; tegmina hyaline with a faint yellowish tint, claval area (excluding base and extreme apex), basal costal margin, and a transverse fascia beyond middle scarlet-red, immediately behind the transverse fascia is a small piceous-red costal spot, apical area very slightly infuscate; vertex a little longer than the breadth between eyes at base, evenly transversely rounded in front of eyes.

Length 4 millim.

Hab. Ceylon; Peradeniya (*Green*).

Genus EMPOASCA.

Empoasca, *Walsh, Proc. Bost. Soc. Nat. Hist.* ix, p. 316 (1864); *Van Duzée, Tr. Am. Ent. Soc.* xxi, p. 309 (1894); *Melich. Hom. Faun. Ceylon*, p. 212 (1903); *Oshan. Verz. Pal. Hem.* ii, *Homopt.* ii, p. 197 (1907).

Chloroneura, *Walsh, Proc. Bost. Soc. Nat. Hist.* ix, p. 316 (1864); *Woodw. Psyche*, v, p. 212 (1889).

Chloria, *Fieb. Verh. z.-b. Ges. Wien*, 1866, p. 508, t. vii, f. 25.

Kybos, *Fieb. Verh. z.-b. Ges. Wien*, 1866, p. 508, t. vii, f. 26.

Chlorita, *Fieb. Rev. Mag. Zool.* (3) iii, 1875, p. 414; *Oshan. Verz. Pal. Hem.* ii, *Homopt.* ii, p. 194 (1907).

Cicadula, *Kirk. Rept. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 357 (1906).

Type, *E. viridescens*, Walsh, a Nearctic species.

Distribution. Probably almost universally distributed.

The original description by Walsh (*supra*) is a combined generic and specific one. As I have recorded many of Melichar's species I give his impression of the genus.

"Tegmina with two terminal veins of which the inner one is simple and the outer one forked and forming a short triangular cell; in the wings the two front sectors are joined into a fork, the stalk of which runs into the peripheral vein, the appendage is absent, the third simple sector connected with the inner forked branch by a transverse vein." (*Melichar.*)

Much difference of view is evinced by various workers as regards this genus. Oshanin, and doubtless with good reason, keeps *Chlorita* separate from *Empoasca* with which he includes *Kybos*. Van Duzée uses *Kybos* as distinct with which he includes *Chlorita*; Puton and Edwards regard both *Kybos* and *Chlorita* as distinct genera; Gillette includes both *Chlorita* and *Kybos* with *Empoasca*. Sahlberg (Not. Faun. Flor. Fenn. Förh. (2) ix, p. 158 (1871)) places *Cicadula* in the Typhlocybinæ, substituting it for Fieber's genus *Kybos*. Woodworth (Psyche, v, p. 76 (1888)) and Van Duzée (*tom. cit.* vi, p. 305, (1902)) condemn this as an unwarranted proceding, but Kirkaldy, an inconoclast in nomenclature, writes "*Cicadula*, therefore, as Sahlberg states, replaces *Kybos*, Fieb." (Rep. Exp. Stat. Haw. Plant. Assoc. pt. ix, p. 357 (1906)). Under these difficulties I have followed the synthetic method, for my material is scanty.

2669. **Empoasca rufa**, *Melich. Hom. Faun. Ceylon*, p. 212, t. vi, f. 2, *a, b* (1903).

"Somewhat long, elongated; scarlet-red; vertex a little longer than the breadth between eyes, not angularly produced in front, nearly rounded, arched above, with a zigzag pale transverse band medially interrupted, which is broad at inner margins of the eyes and pointed inwards; face somewhat long, narrow, and like antennæ of a pale red colour; eyes greyish-brown; pronotum one and a half times as long as vertex, in front behind flatly bayed, and like scutellum pale red; tegmina somewhat long, the sides parallel, rounded off posteriorly, hyaline with delicate veins, pale red, the apical area hyaline, transparent, faintly coloured with yellowish; on costal margin a somewhat long opaque white oval spot; wings hyaline, vitreous, with red veins; body beneath and legs red; tibiæ more yellowish, claws dark." (*Melichar.*)

Length 4 to $4\frac{1}{5}$ mm.

Hab. Ceylon; Peradeniya (*Green*). Tenasserim; Myitta (*Doherty*).

My specimens agree well with Melichar's description save in possessing "the long opaque white oval spot on costal margin." In one example such a spot is clearly indicated, but it is more very pale reddish than white.

2670. **Empoasca centromaculata**, *Melich. Hom. Faun. Ceylon*, p. 213, t. vi, f. 7, *a, d* (1903).

"Pale yellowish; vertex twice as broad as long, in front broadly rounded, not produced, rounded to the front, above arched with a depressed middle line in nape; eyes large, sessile, brown to black, in dried specimens greyish-brown and only the front and hind angles deep black; face somewhat long, twice as long as broad, with two series of short yellowish transverse streaks and two indistinct spots on apex; clypeus broad at base, narrowed to apex, which projects beyond tips of cheeks, 'zügel' longish, narrow, also the cheeks; pronotum one and a half times as long as vertex, yellowish, the posterior margin whitish, or the whole pronotum whitish, near anterior margin a protuberance running parallel with same, on central disk a large black spot from which a fine brown line runs right and left towards the sides, sometimes also a similar very short line extends towards the anterior margin; scutellum triangular, yellowish, with a narrow rusty-yellow triangle in basal angles and a medial transverse impressed line; tegmina hyaline, dirty-yellow, longer than the abdomen, costal and terminal marginal veins dark brown, three terminal cells, the outer one triangular, the sectors indistinct, no veins in clavus but only a few impressed points; wings hyaline, suffused with milky-white, veins brown, first sector the thickest and fused with second before apex

to a forked vein and connected with third sector by a transverse vein ; sternum, abdomen and legs yellowish ; all the claws brown." (*Melichar.*)

"Length ♂ 3 millim.

Hab. Ceylon ; Peradeniya, Colombo (*fide Melichar*).

I have not seen this species.

2671. **Empoasca citrina**, *Melich. Hom. Faun. Ceylon,* p. 213, t. vi, f. 12 *a* (1903).

"Vertex acutely angularly produced, as long as broad between eyes, arched, lemon-yellow ; face flatly directed downward, yellow, unmarked ; pronotum as long as vertex, nearly semicircular, with the posterior angles rounded off, arched, smooth, shining, lemon-yellow ; scutellum lemon-yellow, with two short longitudinal white streaks at base ; tegmina delicate, hyaline, lemon-yellow, with delicate pale yellow veins, on costal margin, behind middle, there is a brown or black oblique marginal streak which runs obliquely inward and hindward to tip of clavus and forms some zigzags in middle of tegmen and nearly disappears, behind is an arched black line forming a semicircle, bordering a milky-white spot, a black spot on inner apical vein ; wings vitreous, iridescent ; body beneath and legs lemon-yellow." (*Melichar.*)

"Length ♂ & ♀ 3 to 3¼ millim.

Hab. Ceylon ; Peradeniya, Colombo (*fide Melichar*).

2672. **Empoasca miniata,** *Melich. Hom. Faun. Ceylon,* p. 214 (1903).

"Small delicate species of a pale yellowish colour with a broad pale cinnabar-red longitudinal stripe on each tegmen ; vertex rather shorter than breadth between eyes, in front obtusely angulated, arched above ; face somewhat long, pale reddish-yellow, unmarked ; pronotum a little longer than vertex, semicircular, pale yellow, slightly reddish at sides ; scutellum yellowish ; tegmina milk-white, delicate, hyaline, with distinct white veins and with the above mentioned red longitudinal stripe which extends from base of clavus to tip of tegmen and there becomes brown ; wings milk-white with delicate white veins ; body beneath and legs pale yellowish or slightly reddish ; borders of connexivum slightly reddish." (*Melichar.*)

"Length ♀ 3 millim."

Hab. Ceylon ; Peradeniya (*fide Melichar*).

I have not seen this species.

2673. **Empoasca melichari,** sp. n.

Vertex, pronotum and scutellum yellowish-white, both vertex and pronotum with two sublateral orange-yellow longitudinal fasciæ,

body beneath and legs pale greyish-yellow; tegmina subhyaline, yellowish-white, with two orange-yellow longitudinal fasciæ, the first occupying the larger part of claval area, the second on disk

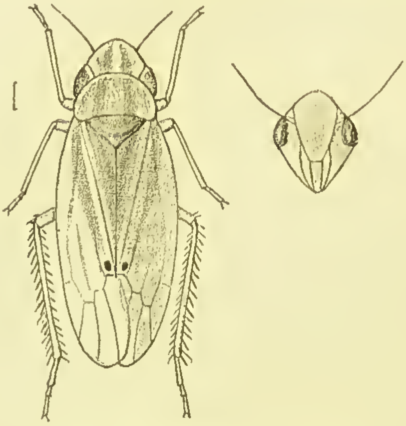

Fig. 249.—*Empoasca melichari.*

above claval area, near apex of clavus a black spot; wings pale hyaline; vertex shorter than breadth between eyes, subangularly rounded in front; pronotum slightly longer than vertex; face unmarked; eyes black, their inner margins pale.

Length 3 millim.

Hab. Ceylon; Dikoya (*Green*).

2674. **Empoasca notata,** *Melich. Hom. Faun. Ceylon,* p. 214 (1903).

Fig. 250.—*Empoasca notata.*

"Narrow, greyish-yellow or pale yellow; eyes black; vertex obtusely angularly produced, with a white middle line in the neck

and two oblique transverse spots on the disk; pronotum with several large and small white spots which run together in places at front margin; scutellum with two white longitudinal stripes which are partly covered by the pronotum and a small transverse spot behind the depressed transverse line, lateral margins irregularly bordered with whitish; tegmina vitreous with very delicate greyish or yellowish veins, the membrane slightly fuliginous; wings hyaline; body beneath and legs pale yellow or greyish-yellow. Resembles *E.* (*Chlorita*) *flavescens*, Fabr." (*Melichar.*)

"Length ♀ $2\frac{1}{2}$ millim."

Hab. Ceylon; Peradeniya, Kala-Wewa (*fide Melichar*).

Dr. Horváth, of Budapest, has kindly enabled me to figure this species.

2675. **Empoasca flavescens**, *Fabr.* (Cicada) *Ent. Syst.* iv, p. 46, 85 (1794); *id. Syst. Rhyng.* p. 79, 85 (1803); *Melich.* (Chlorita) *Cicad. Mitt.-Europ.* p. 326, t. xii, ff. 19–21 (1896); *Gillette, Proc. U.S. Nat. Mus.* xx, p. 745 (1898); *Melich.* (Empoasca) *Hom. Faun. Ceylon*, p. 215 (1903); *id. Wien. ent. Zeit.* xxiv, p. 304 (1905); *Kirk.* (Cicadula) *Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 357 (1906).
Var. birdii, *Goding, Ent. News*, i, p. 123 (1890).

Pale virescent or flavescent, body beneath paler; vertex shorter than breadth between eyes, rounded in front; tegmina shining; wings hyaline iridescent; face usually pale greenish, its anterior margin flavescent and with a central longitudinal carinate line; the lateral areas finely transversely striate; tarsi and apices of tibiæ frequently of a dark bluish-grey; tegmina of a shining flavescent or pale viridescent hue.

Length 3 millim.

Hab. Assam, Darjiling, Cachar. Ceylon; Peradeniya (*Green*).—East Africa (*fide Melichar*). Brazil (*fide Lethierry*). Palæarctic Region, including Algeria and Siberia (*fide Lethierry*), fairly common on the European Continent and found in Britain; common and widespread in the United States (*fide Gillette*).

Vol. iii. of 'Indian Museum Notes' contains several interesting records concerning this now well-known tea-pest. In no. iv, p. 34, we read that "a large amount of damage from this insect was reported in 1891 from tea-gardens, especially in Cachar and in the Upper Assam Valley." In the latter district the insect is said to have appeared in the early part of the season and to have lasted on until June. According to a report dated 19th June, 1891, from a garden in Cachar, the insect stops the growth of the young shoots and prevents their ever becoming fit for plucking. The effect of the pest was said to be deplorable. Over whole sections of the tea-garden the plants were covered with leaf about an inch in length, which never grew any bigger; and one case is

cited where 199½ acres had been plucked, and had given considerably less leaf than had often been obtained from a patch of seventeen acres. The only treatment that was tried was extra hoeing in the hope of bringing vigour to the bushes.

Experiments made with several insecticides with the hope of destroying the pest are detailed by Mr. M. K. Bamber in his 'Chemistry and Agriculture of Tea' pp. 250–1.

Gillette states that the only difference he can find in specimens taken in Colorado from those received from the eastern portions of the United States and from Europe is that they are all of a rather deep green colour, instead of yellow or greenish-yellow. The above description is taken from Ceylonese specimens.

2676. **Empoasca petasata**, *Melich. Hom. Faun. Ceylon,* p. 215 (1903).

"Somewhat long, yellow or greenish-yellow, shining; vertex rounded in front, with two small black spots on the passage from the vertex to the front; face somewhat long with faint, indistinct

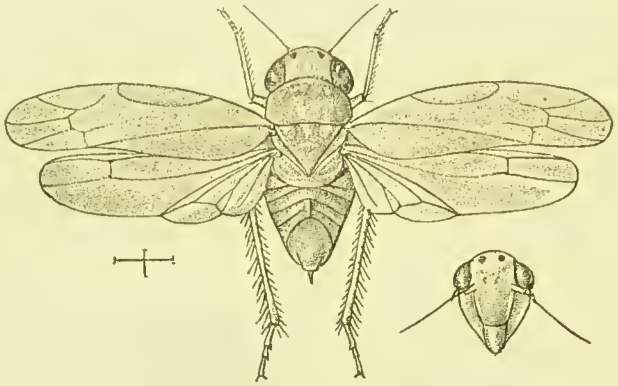

Fig. 251.—*Empoasca petasata.*

transverse streaks; pronotum and scutellum unicolorous, unmarked; tegmina vitreous, hyaline, dirty or greyish-yellow, sometimes the broader vein and the delicate veins more strongly green; wings vitreous, veins greenish-yellow; sometimes the legs darker green." (*Melichar.*)

"Length ♂ & ♀ 4 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*), Kandy (*Mus. Hongrois*).

A specimen in the Budapest Museum is here figured.

THE LONDON SCHOOL OF TROPICAL MEDICINE;
ROYAL ALBERT DOCKS, E.

Genus HELIONA.

Heliona, *Melich. Hom. Faun. Ceylon*, p. 215 (1903).

Type, *H. constricta*, Melich.
Distribution. Ceylon.

"This genus is distinguished from *Empoasca*, with which it is very closely allied, by the long narrow face which is not open above as in *Empoasca* but closed, because the frontal sutures are connected below by an acute angle, or bow-shaped with one another; otherwise as in *Empoasca*." (*Melichar.*)

2677. **Heliona constricta**, *Melich. Hom. Faun. Ceylon*, p. 215, t. vi, f. 5, *a*, *b* (1903).

"Body somewhat long, elongated, dirty-yellowish, vertex distinctly longer than the breadth between the eyes at base, and therefore narrower than between the front corners of the eyes, the anterior

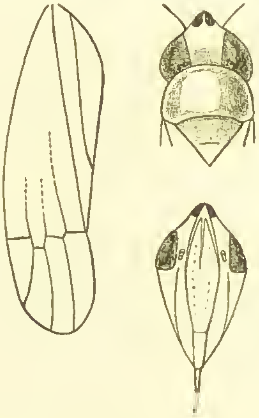

Fig. 252.—*Heliona constricta.*

margin suddenly produced into a short obtuse point on which are two black longitudinal spots; face somewhat long, narrow, the sutures which in the lower part begin from the antennal cavities to clypeus are black connected together at the tips of vertex beneath with a sharp angle, the facial disk a little arched, with short indistinct transverse streaks; rostrum and clypeus short; pronotum rather longer than the vertex, greenish-yellow; scutellum rusty-yellowish with a short transverse medial line; tegmina somewhat long, narrow, hyaline, transparent, of a dirty-yellowish colour, with very delicate veins only perceptibly yellowish on the apical area; wings hyaline, vitreous, with yellowish veins; sternum and

abdomen beneath yellow, dorsum black, legs pale yellow, all the claws black." (*Melichar.*)

"Length ♀ 4 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

I have not seen this species, and reproduce Melichar's description and figure.

2678. **Heliona bioculata**, *Melich. Hom. Faun. Ceylon*, p. 216, t. vi, f. 8 (1903).

"Differs from the preceding species by the shorter and broader form of body; vertex considerably shorter, scarcely half as long as breadth between eyes, rounded in front, not produced, with two large black spots surrounded by a pale area, between the two spots a fine longitudinal line extending from posterior margin to middle of face; face somewhat long but still considerably shorter than in *constricta*, the facial sutures beneath the tip of vertex connected together and bow-shaped, intersected by the before mentioned middle line and provided with two small black dots, on facial disk are indistinct series of transverse streaks, in middle of lower part a short pale longitudiual line; clypeus short, barrel-shaped; eyes black; pronotum greyish-brown, yellowish on anterior margiu; scutellum yellowish, at base indistinctly greyish-brown, two black marginal spots at apex; tegmina dirty-yellow, hyaline, with very delicate and scarcely visible veins; wings milky-white, greyish, with delicate brown veins; body beneath and legs dirty-yellowish, all the claws dark brown." (*Melichar.*)

"Length ♂ 3 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

I have not yet had an opportunity of seeing this species, but from Melichar's description and figure it can scarcely be considered as congeneric with *Heliona constricta*. Before the Appendix is completed we may have received examples.

Division *TYPHLOCYBARIA.*

Sectors of posterior wings ending in wing margin, no marginal vein. (*Gillette.*)

Synopsis of Genera.

The difficulties in separating the two following genera on wiug venation only, especially with scanty material, will be found considerable, but at present I cannot do better thau follow Gillette.

A. Sectors 1–2 of wings uniting, so that only three veins extend to the margin........	Typhlocyba, p. 409.
B. All four sectors of wings extending to the wide margin.........................	Eupteryx, p. 415.

Genus TYPHLOCYBA.

Typhlocyba, *Germ. Silb. Rev. Ent.* i. p. 180 (1833); *Fieb. Rev. Mag. Zool.* (3) iii, p. 415, 1875; *Edw. Tr. E. S.* p. 94, 1888; *Van Duz. Tr. Am. Ent. Soc.* xxi, p. 311 (1894); *Melich. Hom. Faun. Ceylon*, p. 216 (1903); *Oshan. Verz. Pal. Hem.* ii, *Hom.* ii, p. 208 (1907).
Erythroneura, *Fitch, Hom. N.Y. State Cab.* p. 62 (1851).
Empoa, *Fitch, tom. cit.* p. 63.
Anomia, *Fieb. Verh. z.-b. Ges. Wien,* xvi, p. 509 (1866).

Type, *T. quercus*, Fabr., a Palæarctic species.

Distribution. Probably almost universally distributed.

"In the tegmina two simple apical veins, the two front sectors connected before the end into a fork, the stalk of which runs into the border of the tip of the tegmen, second sector just before its fork with the third simple sector and with the peripheral vein running into the border of the tegmen, connected by a rectangular or acute-angular (oblique) transverse vein." (*Melichar.*)

2679. **Typhlocyba orbata,** *Melich. Hom. Faun. Ceylon,* p. 216 (1903).

Vertex pale yellowish, eyes piceous-brown; pronotum greyish,

Fig. 253.—*Typhlocyba orbata.*

the anterior marginal area pale yellowish; scutellum very pale ochraceous, a large black spot near each basal angle; body beneath

and legs very pale ochraceous; a piceous spot on each side of sternum behind the anterior coxæ; tegmina pale greyish subhyaline, the basal and claval areas more or less granulose; vertex moderately convex, near eyes a little suffused with ochraceous; face elongate, unicolorous, a little convex; scutellum basally depressed where there are four longitudinal carinate lines, the apical marginal area transversely arcuately raised; the granulations on the basal area of the tegmina do not reach the apical area of the clavus nor extend to the costal margin; the pronotum is finely irregularly transversely striate.

Length ♂ & ♀ 5 to 5½ millim.

Hab. Ceylon; Pattipola (*Mus. Hongrois*).

I am indebted to Dr. Horváth of Budapest for the opportunity of figuring this species.

2680. **Typhlocyba erota**, sp. n.

Vertex and pronotum greyish; eyes black; scutellum pale lemon-yellow with three large black spots, one at each basal angle and the other at apex; body beneath and legs pale yellowish-grey, abdomen beneath black, the anal segment yellowish; tegmina hyaline with a slightly bluish tint, the basal and claval areas granulose; vertex considerably shorter than breadth between eyes, rounded in front; face with an indistinct pale central longitudinal line; pronotum elongate, twice the length of vertex.

Length ♀ 5½ millim.

Hab. Ceylon; Pattipola (*Green*).

Allied to *T. orbata*, from which it differs by the more elongate pronotum, the black apex to the scutellum, the black abdomen beneath, &c.

2681. **Typhlocyba fumigata**, *Melich. Hom. Faun. Ceylon*, p. 217 (1903).

"Very like *T. funeta*, but considerably smaller; head quite black, at the passage of vertex to front two small oblique yellowish transverse dots converging to the middle line, sometimes the posterior margin of vertex is yellowish or dirty-yellow, or reddish-yellow, which colour extends along the inner margins of the eyes to the sides of the face and cheeks, whereas the disk of the face and the clypeus (including rostrum) is black; antennæ yellowish; pronotum black, anterior margin paler with several indistinct dots; scutellum dirty-yellowish with two black triangles; tegmina and wings smoky-brown with delicate piceous-brown veins, an opaque somewhat long spot on costal margin of

tegmina; body beneath black; legs dirty-yellow, claws dark." (*Melichar.*)

"Length ♂ & ♀ $2\frac{1}{2}$ millim."

Hab. Ceylon; Pattipola (*fide Melichar*).

I have not seen this species.

2682. **Typhlocyba funeta,** *Melich. Hom. Faun. Ceylon,* p. 217, t. vi, f. 10, *a* (1903).

Vertex pale yellowish; pronotum slaty-grey, the anterior margin narrowly yellowish; scutellum pale yellow, with a large black spot near each basal angle; sternum and legs very pale ochraceous, the face (excluding lateral margins) darker and dull greyish; clypeus piceous, the margins yellowish; a piceous spot on each side of sternum behind the anterior coxæ; abdomen beneath piceous, the segmental margins pale yellowish; tegmina very pale fuliginous, the subbasal costal cell slaty-grey, apical area very pale

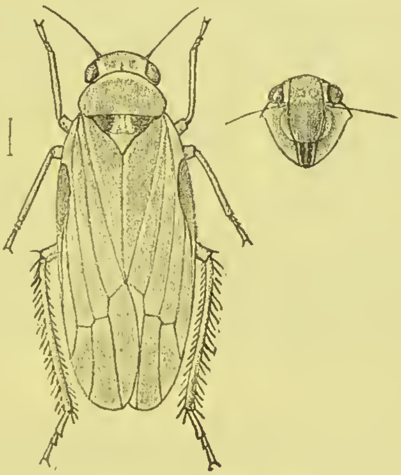

Fig. 254.—*Typhlocyba funeta.*

fuliginous; vertex centrally suffused with ochraceous; face slightly convex, the pale margins strongly defined; pronotum very obscurely finely granulose; scutellum strongly transversely impressed before apical area and between this impression and base a dark longitudinal line.

Length ♂ & ♀ 4 millim.

Hab. Ceylon; Pattipola (*Mus. Hongrois*).

The specimen here figured was kindly lent me for that purpose by Dr. Horváth of Budapest.

2683. **Typhlocyba fumosa**, *Motsch.* (Thamnotettix) *Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 101 (1863); *Melich.* (Typhlocyba (Zygina)) *Hom. Faun. Ceylon*, p. 218 (1903).

"Elongate, subparallel, shining, testaceously-subfuscous; eyes and abdomen beneath black; tegmina hyaline, white, infuscate; legs pale; head transverse, convex, anteriorly arcuately subproduced; ocelli in front, scarcely distinct; eyes oblong, posteriorly somewhat prominent; pronotum transverse, posteriorly slightly straightened, slightly finely punctate; mesonotum trapezoidal, marginate; scutellum triangular, shining; tegmina as broad as head, parallel, apically rounded, slightly infuscate." (*Motschoulsky.*)

"Length $1\frac{1}{4}$ l., lat. cap. $\frac{1}{3}$ l."

Hab. Ceylon; Mont Patannas (*fide Motschoulsky*).

2684. **Typhlocyba nigrobimaculata**, *Motsch.* (Thamnotettix) *Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 101 (1863); *Melich.* (Typhlocyba (Zygina)) *Hom. Faun. Ceylon*, p. 218 (1903).

"Closely allied to the preceding species, but somewhat smaller; mesonotum with two black spots; elongate, medially slightly arcuate, shining, testaceous, subfuscously variegated; eyes somewhat cinereous; abdomen beneath infuscate, medially paler; tegmina smoky-hyaline, veins paler, strongly marked; eyes anteriorly subangularly truncate, slightly prominent; pronotum almost broader than head." (*Motschoulsky.*)

Length 2 to $2\frac{1}{2}$ millim.

Hab. Ceylon; Weligama (*Green*), Newara-Elia (*fide Motschoulsky*).

Mr. Green has sent me four specimens of this species which agree with the description of Motschoulsky (*supra*). The two black spots which he describes as on the mesonotum I regard as on the base of the scutellum.

2685. **Typhlocyba sudra**, sp. n.

Pale greyish with a flavescent tint, in some specimens dull virescent; vertex with an apical black spot which is visible beneath on the basal margin of face; eyes black; scutellum with two prominent black spots near the basal angles; tegmina subhyaline tinged with flavescent or virescent; wings hyaline, somewhat strongly iridescent; vertex rounded in front, shorter than breadth between the eyes; scutellum transversely impressed near middle. Allied to *nigrobimaculata*, Motsch., but with vertex a little longer and slightly more angulate, and also distinguished by the apical black spot.

Length $2\frac{1}{2}$ to 3 millim.

Hab. Calcutta (*Annandale*).

Breeds on the leaves of *Bauhinia acuminata*, on which it is very abundant, often taking to flight in a regular cloud when the tree is shaken. (*N. Annandale.*)

2686. **Typhlocyba jaina**, sp. n.

Vertex, pronotum and scutellum pale flavescent; vertex with an apical black spot which is sometimes large and rounded or narrow and transverse and almost medially interrupted and seen beneath at base of face; eyes black; pronotum with a transverse brown fascia a little behind middle; scutellum with a prominent black spot near each basal angle; face with its lateral margins brown; abdomen above piceous, beneath brown; tegmina subhyaline, a subcostal and a claval streak pale brown; wings milky-white with the veins pale brown; vertex shorter than the breadth between eyes, its anterior margin subangularly rounded; pronotum somewhat strongly arched; scutellum transversely impressed near middle.

Length 3 millim.

Hab. Calcutta (*Annandale*); Katihar, Dist. Purneah (*Paiva*).

2687. **Typhlocyba (Zygina) subrufa**, *Motsch.* (Thamnotettix) *Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 100 (1863); *Melich.* (Typhlocyba (Zygina)) *Hom. Faun. Ceylon*, p. 218 (1903).

"Elongate, subparallel, shining, rufous-testaceous; abdomen and eyes black; tegmina somewhat palely white, apex infuscate, veins white; legs pale; head subtransverse, subconvex, anteriorly incrassately-truncate, impunctate; ocelli in front, scarcely distinct; eyes transverse, subovate, a little prominent; pronotum almost the breadth of head, strongly transverse, unequal, medially slightly carinate, anteriorly arcuate, posteriorly somewhat sinuately-truncate, angles somewhat rounded; metanotum trapezoidal, shining, with scutellum testaceous; tegmina as broad as head, posteriorly parallel, hyaline, corium rugosely punctate." (*Motschoulsky.*)

Length $2\frac{1}{2}$ to $3\frac{1}{4}$ millim.

Hab. Ceylon; Diyatalawa (*Bainbridge-Fletcher*), Weligama (*Green*), Colombo (*fide Motschoulsky*).

I have several specimens exactly agreeing with the above description.

2688. **Typhlocyba maculifrons**, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 103 (1863); *Melich.* (Typhlocyba (Zygina)) *Hom. Faun. Ceylon*, p. 219 (1903).

I use Melichar's description of this species taken from Ceylonese specimens which he has identified with Motschoulsky's diagnosis.

"Head, pronotum and scutellum yellow, vertex not produced, its margin rounded, at apex a large black spot; face somewhat

long, yellow, with indistinct brownish transverse stripes; apex of clypeus black; pronotum somewhat longer than vertex, rounded in front, flatly concave behind, above yellow with greyish colouring on the disk; scutellum somewhat long, triangular, with a depressed transverse line in middle; tegmina hyaline, delicate, yellowish-green with similarly coloured delicate veins, the membrane weakly suffused with fuliginous-brown; wings hyaline; sternum and legs yellow; abdomen above and beneath black, margins of the segments narrowly yellow." (*Melichar.*)

Length 2 to $2\frac{1}{5}$ millim.

Hab. Calcutta (*Annandale*). Between Bolpore and Rampore Haut, E. I. R. Bengal (*Paiva*); Barrackpore (*Annandale*). Ceylon; Weligama (*Green*), Peradeniya, Colombo (*fide Melichar*).

The large black spot at the apex of the vertex is invariably notched in front as shown in Melichar's figure.

2689. **Typhlocyba currax**, *Melich.* (Typhlocyba (Zygina)) *Hom. Faun. Ceylon*, p. 220 (1903).

"Body narrow, elongated, pale yellowish, vertex more than twice as broad as long, rounded in front, with two black approximate spots; front somewhat long, arched, yellow, with two series of short rusty-yellow transverse dashes: eyes black; pronotum nearly three times as long as vertex, rounded in front, very flat behind, yellow, greyish on disk; scutellum with a large black triangle in each basal angle, a short depressed transverse line at middle; tegmina somewhat long, narrow, hyaline, dull yellowish, with delicate veins, costal marginal vein more yellowish and on costal margin a dull yellowish oval marginal spot, on hind margin of outer apical cell a somewhat long black spot; wings hyaline, vitreous, with brown veins; sternum and legs pale yellow; claws dark; abdomen above and beneath black, margins of segments somewhat yellow." (*Melichar.*)

"Length ♀ $3\frac{2}{3}$ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

2690. **Typhlocyba bipunctula**, *Melich.* (Typhlocyba (Zygina)) *Hom. Faun. Ceylon*, p. 220, t. vi, f. 3, *a* (1903).

"Similar to *T. currax* in form and size, slender, pale lemon-yellow; vertex with two black spots as wide apart from each other as from eyes, whereas in *currax* the spots are nearer to each other; face pale yellow, unmarked; tegmina very delicate hyaline, pale lemon-yellow, paler to apical area where it is nearly colourless with yellowish delicate veins; wings hyaline, vitreous, iridescent; body beneath and legs pale yellow; all the claws brown; dorsum yellow."

"This species is distinguished from *T. currax* by the lemon-yellow colour of the whole body (in *currax* it is more greyish-yellow), the absence of basal black triangles to scutellum and the absence of the spot on the outer apical cell of tegmina, as well as by the abdomen being pale yellow both above and beneath." (*Melichar.*)

"Length ♀ $3\frac{3}{5}$ millim."

Hab. Ceylon ; Peradeniya (*fide Melichar*).

Melichar appears from the descriptions to have figured his *T. currax* as *T. bipunctula.*

2691. **Typhlocyba indra**, sp. n.

Vertex, pronotum, scutellum, body beneath and legs pale yellowish-grey; vertex with two prominent black spots between the anterior margins of the eyes, and very slightly nearer to the eyes than to each other; eyes black; face with a central longitudinal brownish line, and a short line of the same colour on each side of basal area before the eyes, a somewhat large black spot margining face on each side a little before its apex; tibiæ finely inwardly lined with black; abdomen above blackish-grey and sometimes of the same colour beneath; tegmina hyaline, sometimes with a dull purplish tint, the venation very delicate and indistinct, costal margin pale yellowish-grey, a subcostal line and the inner claval margin pale brownish; wings pale hyaline, slightly iridescent; vertex very slightly longer than breadth between the eyes, its anterior margin subangulate, a faint central impressed longitudinal line; scutellum with a transverse central impressed line on disk.

Length $3\frac{1}{2}$ millim.

Hab. Calcutta (*Annandale & Paiva, Ind. Mus. & Coll. Dist.*).

2692. **Typhlocyba tripunctula**, *Melich.* (Typhlocyba (Zygina)) *Hom. Faun. Ceylon,* p. 220 (1903).

"A very small delicate cicadine of a pale lemon-yellow colour; vertex acutely angulate; face pale yellowish, eyes greyish-white; in middle of vertex a pale longitudinal line, within which in the nape a short depressed line is visible; pronotum as long as vertex, semi-circular; scutellum with several indistinct longitudinal spots and an impressed transverse line; tegmina extremely delicate with very delicate veins, pale lemon-yellow, and with three small sanguineous spots of which the largest and most distinct is on the transverse veins, a smaller one on the tip of the clavus and another on the costal margin behind the middle; middle apical cell narrow; wings hyaline, vitreous; body beneath and legs white." (*Melichar.*)

"Length ♀ $1\frac{1}{2}$ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

I have not seen this species.

Genus EUPTERYX.

Eupteryx, *Curt. Ent. Mag.* i. p. 192 (1833); *Melich. Hom. Faun. Ceylon*, p. 210 (1903); *Oshan. Verz. Pal. Hem.* ii, *Homopt.* ii, p. 198 (1907).
Diomma, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 102 (1863).
Typhlocyba, *Fieb. Rev. Zool.* 1875, p. 415; *id. t. c.* 1876, t. 13.

Type, *E. atropunctata*, Goeze, a Palæarctic species.

Distribution. Nearctic, Palæarctic and Oriental Regions. Probably much more widely distributed.

"Face subtrigonate, the head appearing crescent-shaped above; rostrum short and lanceolate; antennæ inserted in a cavity under each eye, biarticulate, first and second joints stout, the former subglobose, the latter oblong, third very slender and terminated by a fine long seta; ocelli none; thorax small, transverse; scutellum triangular; superior wings narrowed and rounded, with a few indistinct nervures; inferior transparent with a few nervures; legs rather slender, posterior long, the tibiæ clothed with spiny bristles from the base to the apex outside, pectinated with spines on the inside, except at the base, tarsi triarticulate, elongated in the hinder pair, the basal joint being the longest, the terminal one the shortest." (*Curtis.*)

"Small delicate Cicadæ with extremely delicate tegmina which exhibit four terminal cells of which the second is triangular; the three sectors in the wings run nearly parallel, divided in the border of the tip and connected by transverse veins, from third sector there is an oblique branch to the encompassing vein running before the tip of the wing into the margin." (*Melichar.*)

2693. **Eupteryx picta**, *Melich. Hom. Faun. Ceylon*, p. 210 (1903).
Eupteryx melichari, *Kirk. Rep. Exp. Stat. Haw. Plant. Assoc.* pt. ix, p. 363 (1906).

"Lemon-yellow with brown markings; vertex and underside ivory-white; vertex triangularly produced, nearly as long as pronotum, obtuse at tip, arched above, shining, without markings; front horizontal, curved downward, very smooth, white, the rounded front margin of vertex shining ivory-white, a short black longitudinal dash on each side at frontal suture near antennal cavities; antennæ white, the antennal bristle yellowish, long; eyes black; rostrum very short; pronotum rounded in front, nearly straight behind, arched, smooth, shining lemon-yellow with a black transverse band on posterior margin; scutellum triangular with a transverse dash before the apex, lemon-yellow; tegmina somewhat long, rounded behind, hyaline, lemon-yellow with

brown markings and near base an indistinct longitudinal mark which touches costal margin, is darker at inner margin and represents a comma-like dash; from apex of scutellum there runs transversely across clavus and corium an oblique line hindward and outward without reaching the costal margin, where there are two parallel marginal dashes running obliquely hindward and inward, behind these a semicircular black line bordered by a white hyaline marginal spot, a large brown mark at tip of clavus and a large black round spot in apical part near inner margin, the apical margin itself narrowly bordered with brown; wings hyaline, shining, with yellowish veins; pectus, abdomen and legs white or yellowish-white; claws black; posterior tibiæ with white bristles on outer ridge. In form much like the European *E. pulchella*, Fall." (*Melichar.*)

"Length ♀ 3–3¼ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

Kirkaldy proposed (*supra*) the new name *E. melichari* for this species on the ground that it was neither the *picta* of Fabricius nor Curtis. As, however, the *Cicada picta*, Fabr. is not now included in *Eupteryx*, and Curtis's identification as such was an error, the proposed new name seems unnecessary.

2694. **Eupteryx insecata**, *Melich. Hom. Faun. Ceylon,* p. 211, t. vi, f. 4 (1903).

Vertex ivory-white, two short impressed longitudinal lines on apical area; eyes pale brownish; pronotum white, the whole of the

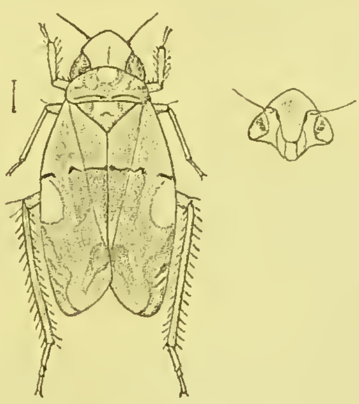

Fig. 255.—*Eupteryx insecata.*

posterior area with ramifications over the anterior white area, lemon-yellow; scutellum white, a triangular spot near each basal angle and the apical area lemon-yellow, the latter inwardly margined

by a dark impressed line; tegmina white, a transverse interrupted black line before middle, immediately behind which on each tegmen is an angulated lemon-yellow patch, apical area with lemon-yellow shadings on costal and inner margins, the former with some transverse dark lines; body beneath and legs very pale lemon-yellow, a small black spot at the antennal cavities; claws black.

Length $3\frac{1}{4}$–4 millim.

Hab. Ceylon; Peradeniya (*Green*).

2695. **Eupteryx ochracea**, *Motsch.* (Diomma) *Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 102, t. ii, f. 21 (1863); *Melich.* (Eupteryx) *Hom. Faun. Ceylon*, p. 212 (1903).

"Elongate, somewhat shining, ochraceous; head, pronotum and tegmina with the apical margins with white spots, three punctures to the clypeus and the abdomen black, segments beneath margined with white; eyes posteriorly subconical and prolongate, scarcely prominent, cinereous-fuscous; front and legs pale; head triangular, posteriorly strongly and profoundly arcuately concave; pronotum transversely subovate, posteriorly at each side on margins piceously punctured; mesonotum trapezoidal, 'deplanato,' two black spots at base; scutellum narrower than mesonotum, triangular; tegmina anteriorly distinctly attenuated, medially dilated, posteriorly parallel, spotted with fuscous and white, veins towards apex white." (*Motschoulsky.*)

"Length $1\frac{1}{6}$ lin.; lat. cap. $\frac{1}{4}$ lin."

Hab. Ceylon; Patannas (*fide Motschoulsky*).

I have not seen this species.

Genus MOTSCHULSKIA.

Conometopus, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 103 (1863); *Melich. Hom. Faun. Ceylon*, p. 221 (1903), nom. præocc.
Motschulskia, *Kirk. Wien. ent. Zeit.* xxiv, p. 266 (1905), n. nom.

Type, *M. inspiratus*, Motsch.

Distribution. Ceylon.

"In form elongated and slender as in *Typhlocyba*, but with the vertex distinctly triangularly or conically produced; head triangular, strongly excavate at base; ocelli none; eyes elongate, by no means projecting but appearing conical as seen from above; antennæ setaceous, not extending beyond the pronotum, which is transverse, a little attenuated in front, as broad as the base of the head, the angles rounded; mesonotum trapezoidal, distinctly separated from the scutellum which is triangular; tegmina

shining, a little transparent, of delicate consistence throughout and uniformly coloured to their apices, veins invisible; legs slender but not very long." (*Motschoulsky.*)

2696. **Motschulskia inspiratus**, *Motsch.* (Conometopus) *Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 104, t. ii, f. 22 (1863); *Melich. Hom. Faun. Ceylon*, p. 221 (1903).

"Elongate, narrow, posteriorly parallel, shining, white; disk of vertex and pronotum, an elongate-triangular spot to tegmina, anteriorly subsinuate, extending to apex, fuscous-piceous; tegmina posteriorly and the legs subrosaceous; head and pronotum laterally and lateral margins of the tegmina at humeral angles broadly white; head triangular, posteriorly strongly concavely arcuate, with a medial elongate line subrosaceous; eyes elongate, whitish; ocelli none; pronotum transverse, anteriorly infuscate, posteriorly concavely arcuate; mesonotum trapezoidal, slightly marked with four fuscous vittæ; scutellum triangular: tegmina as broad as pronotum, elongate, shining, veins indistinct." (*Motschoulsky.*)

"Length $1\frac{1}{4}$ lin.; breadth of head $\frac{1}{4}$ lin."

Hab. Ceylon; Mont Patannas (*Nietner*, *fide Motschoulsky*).

I have not reproduced the figure as it is of little assistance, and I have no personal knowledge of the species.

APPENDIX.

Family PENTATOMIDÆ. (Vol. I, p. 1.)

Since the description of this family—so far as British India is concerned—was published in 1902, a considerable number of other species have either been received or described by different workers; these genera and species are now incorporated. Some corrections in nomenclature are made consequent on the discovery of preoccupied generic names, which the lists compiled by Mr. C. O. Waterhouse, Dr. D. Sharp, and Dr. E. Bergroth subsequent to those of Mr. S. H. Scudder have made possible.

In all the families of Rhynchota (both Heteropterous and Homopterous), which have been enumerated, attention has been directed to the different views held by authors as to the families or subfamilies in which certain genera and species should be located. Two instances have to be referred to in connection with the Pentatomidæ of this fauna. The genus *Eumenotes*, West.=*Odonia*, Bergr., was placed by the latter writer in the Aradidæ, a family on which he is regarded as our first authority. In this course I followed his direction (vol. ii, p. 155), merely remarking that it at least should form the type of a new subfamily. Bergroth, however, has recently (Deutsch. Ent. Zeitschr. 1907, p. 498) stated that he committed an error in so doing, and now considers that the genus is really Pentatomid and represents a new division "Eumenotaria" of the subfam. Tessaratominæ. This is nearer the view of its original describer, the late Prof. Westwood, who placed it in the Pentatomidæ near the genus *Megymenum*. Walker, who redescribed the species, also considered it an Aradid.

The second variant in taxonomy relates to the genus *Parastrachia*, which I founded in 1883 and placed in the subfamily Pentatominæ. So good an authority as my friend Dr. Horváth took exception to this view and stated (1889) that it should have been placed in the Asopinæ. Dr. Schouteden, however (1907), who has recently critically examined this subfamily and published an enumeration of the same, dissents altogether from this pronouncement and upholds my location. As a species of *Parastrachia* is now included in our fauna, these remarks are necessary.

As regards localities space will not allow additions to those already given of a large number of species previously enumerated. One, however, deserves mention. That very scarce species in collections, *Amblycara gladiatoria*, Stål (vol. i, p. 217), is now represented in the British Museum by a specimen collected by Mr. Dodd in Queensland.

Subfamily PLATASPIDINÆ. (Vol. I, p. 3.)

Genus **TIAROCORIS**. (Vol. I, p. 14.)

Correction of misprint in generic diagnosis. For " body large and concave " read " body large and convex."

Genus **COPTOSOMA**. (Vol. I, p. 17.)

2697. **Coptosoma merguiensis**, sp. n.

Ochraceous, somewhat thickly brownly punctate; scutellum with two oblique discal inwardly directed impunctate pale ochraceous fasciate spots; head impunctate, the margins of the lateral lobe brownish, apices of lateral lobes meeting in front of central lobe; eyes fuscous, somewhat strongly produced; pronotum convex, deflected anteriorly, the anterior lateral margins a little roundly ampliate, an obscure transverse impressed line on anterior area, and before which there are two transverse linear callosities, a central pale longitudinal impunctate line on posterior area, the brown punctures rather sparsely distributed; scutellum rather more thickly brownly punctate except on apical marginal area, a fine discal transverse impressed line a little behind base; body beneath and legs pale ochraceous, central disk of sternum and abdomen piceous; the body is broadly convexly subovate, widened behind and narrowed anteriorly, the apex of the scutellum broadly truncate.

Length 4 millim.

Hab. Mergui (*Coll. Dist.*).

Allied to *C. cribarium*, Fabr.

My attention has been called to the fact that I did not include the *Coptosoma carinatum*, Kuhlg. (Arch. Naturg. lxvii, p. 245, 1901) described as from " India Orientalis.—Klug." I do not do so because Klug may very probably have procured the species outside the limits of our faunal area.

Genus **CARRABAS**, nov.

Type, *C. maurus*, Dist.

Distribution. Madras.

Body convex, suboblong; head produced, deflected, strongly concave, the lateral lobes much longer than the central lobe, strongly cleft at apices, their margins a little broadly elevated; eyes scarcely reaching the anterior angle of the pronotum; antennæ four-jointed, joints only slightly differing in length, apical area of second joint moderately clavate; rostrum imperfectly seen in typical *carded specimen*; pronotum very large, convex, anteriorly and laterally deflected; scutellum convex, almost completely covering

abdomen, foveately impressed on each side near basal angles; legs robust, tibæ spinulose; tarsi with the apical joint longest.

The position of this genus seems to be after the Plataspidinæ and near the genus *Thyreocoris* which is placed by Lethierry and Severin in their subfamily Corimelænidæ. *Thyreocoris* by Stål and other authorities is included in the Cydninæ, but Signoret, who monographed that subfamily, does not enumerate it therein.

2698. **Carrabas maurus**, sp. n.

Black, shining, tarsi ochraceous; head concave, granulose; antennæ brownish-ochraceous, the basal joint and apical area of the last joint piceous-brown; pronotum and scutellum thickly finely punctate, the first with the lateral margins a little laminate;

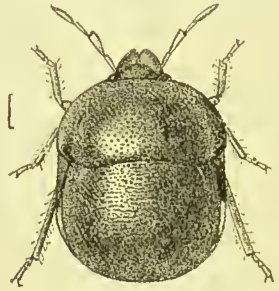

Fig. 256.—*Carrabas maurus.*

scutellum distinctly foveate on each side of basal margin; connexivum slightly exposed and with an ochraceous spot near middle.

Length 4; max. breadth $2\frac{1}{2}$ millim.

Hab. Madras (*Stebbing*).

On Casuarina (*E. P. Stebbing*).

Subfamily SCUTELLERINÆ. (Vol. I, p. 38.)

Genus **CHRYSOCORIS**. (Vol. I, p. 54.)

2699. **Chrysocoris iris**, *Germ.* (Calliphara) *Zeitschr. f. Ent.* i, p. 128 (1839); *Herr.-Schäff. Wanz. Ins.* v, p. 80, f. 526 (1839); *Schout.* (Eucorysses) *Wytsm. Gen. Ins.* fasc. xxiv, p. 34 (1904).
Callidea sexmaculatus, *Voll. Faun. Ind. Néerl.* i, p. 18, pl. 1, f. 7 (1863).
Var. sultanina, *Bredd. Soc. Ent.* xviii, p. 75 (1903).

Purplish-red with bluish reflections; head with the base, narrow margins to central lobe, and the antennæ black; pronotum with the centre of anterior margin, a central subcordate spot on disk, and the posterior margin in front of scutellum (broadened inwardly at each end) black; scutellum with a spot at each basal angle, two

contiguous spots on anterior disk, a large spot before the middle of each lateral margin, and two transverse spots beyond middle which almost meet and nearly form a transverse fascia, black; body beneath purplish-red, the abdomen more sanguineous; sternum largely spotted with greenish-black; legs more or less blackish-green; rostrum and posterior abdominal segmental margins (the latter broadly widened outwardly) and a spot on apical segment black; first and second joints of antennæ very short, fourth and fifth longest and subequal in length, each a little longer than third; rostrum somewhat longly passing the posterior coxæ.

Length 19 to 22 millim.; width between pronotal angles 10 to 11 millim.

Hab. Burma (*fide Breddin*). Tenasserim (*fide Atkinson*).—Malay Peninsula. Java. Bantam.

This species may be placed next *C. grandis* (vol. i, p. 54), to the description of which I added a note: "An allied species *C. iris*, Germ. has been stated by Atkinson to be recorded from Tenasserim, but I can find no confirmation of this habitat." Now that Breddin has recorded it from Burma the species must be included in our enumeration.

Genus **ARCTOCORIS**. (Vol. I, p. 70.)

I have followed Stål in treating *Irochrotus*, Amy. & Serv. as a synonym of *Arctocoris* (part.), Germ. Dr. Schouteden inclines to the reverse method and treats *Irochrotus* as a distinct genus and as representing both the species included in these volumes. I here follow the original method, at least for the sake of conformity.

2700. **Arctocoris indicus**, *Schout.* (Irochrotus) *Ann. Soc. Ent. Belg* xlviii, p. 303 (1904); *id. Wytsm. Gen. Ins.* fasc. xxiv, p. 89, t. v, f. 9 (1904).

"Body elongate, the sides nearly parallel, black, slightly brilliant; above densely and clearly punctate, the puncturation a little more remote and less clear on the scutellum; covered with a coarse white pubescence intermixed with long stiff brown hairs; scutellum largely (except at base, a fascia on each side of the median line, and a straight band outwardly directed) of a somewhat deep brownish-castaneous; head a little shorter than broad; bucculæ exhibiting behind an angle nearly straight, rounded, their extreme edge straight; antennæ piceous, second and third joints somewhat pale testaceous, first joint a little longer than the second, third scarcely shorter; pronotum profoundly incised on each side, a little less behind the middle, the posterior lobe a little broader behind than the anterior lobe, the margins slightly rounded, the anterior lobe at the lateral edges rounded in front, straight behind, the posterior angle rounded, the anterior lobe not much broader in front than the head, the anterior angles rounded, slightly prominent as seen

in front rather than as observing the insect from above; scutellum exhibiting a basal elevation well defined." (*Schouteden.*)

"Long. 5–6·5 millim."

Hab. Bengal (*Schouteden*).

This species is allied to *A. incisus*, Stål. Dr. Schouteden remarks that of the latter species I have not given the structural characters and my figure does not permit of specific determination. I cannot agree with this pronouncement, as that figure was not only accurately drawn from the type by our artist, but is also accompanied by three sectional drawings, which show the structural characters better than can be expressed by words. Strange to say, although Schouteden has described the antennæ of his species they are not shown on his figure, nor are any structural details portrayed. Consequently I think my friend has allowed himself in this case to be hypercritical.

Subfamily GRAPHOSOMATINÆ. (Vol. I, p. 70.)

Genus PODOPS. (Vol. I, p. 72.)

2701. **Podops longispina**, *Schout.* (Scotinophara) *Ann. Soc. Ent. Belg.* xlix, p. 147 (1905); *id. Wytsm. Gen. Ins.* fasc. xxx, p. 35, t. iii, f. i (1905).

"The upper side of the body is of a somewhat pale tint, the underside is for the larger part of a more deep colour with the exception of a large marginal zone on the abdomen; the femora and the base of the tibiæ are either black or piceous, the tarsi and the tibiæ (excluding base) flavescent; pronotum with a transverse impression a little profound, each anterior angle exhibits a long spine, granulose and sharply obliquely directed forward, the lateral angles are likewise continued in front of the usual slope in a granulose spine but longer than the anterior spines and directed transversely or nearly so, between the two spines, anterior and posterior, the lateral margin is nearly straight, entire, the disk a little convex; scutellum at base with three small callous white spots; lobes of the head equally long." (*Schouteden.*)

"Length 7·25 to 7·75 millim."

Hab. Trichinopoly, Maissour, Gathes (*fide Schouteden*).

From the figure this species appears to be principally distinguished by the length of the lateral spines. Dr. Schouteden has not given their dimensions, or rather their expanse.

2702. **Podops scobinæ**, sp. n.

Head and anterior area of pronotum black; posterior area of pronotum, scutellum and corium rusty-brown; body beneath piceous; legs and antennæ ochraceous more or less speckled with fuscous; antennæ finely pilose, third and fifth joints longest and

subequal in length; head coarsely punctate, the apices of the lateral lobes a little prominent, a robust lateral spine between eyes and base of antennæ; pronotum broad, transverse, transversely depressed in front of lateral angles, before this depression a transverse series of fine tubercles of which the lateral ones are more elongate and a little less prominent, the lateral margins dentate and convex to base of lateral angles which are subacutely prominent; on disk a central pale ochraceous levigate longitudinal line, somewhat coarsely and regularly punctate; scutellum thickly finely punctate, with three obscure pale ochraceous basal spots, one central and one near each basal angle; corium thickly finely punctate; membrane pale bronzy subhyaline; body beneath thickly shortly palely pilose; rostrum ochraceous, reaching the posterior coxæ.

Length 9 to 10; breadth between pronotal angles 5 to $5\frac{1}{2}$ millim.

Hab. Assam; Khási Hills. Burma; Bhamo.

Allied to *P. serrata*, Voll., from which it differs principally by the structure of the pronotum, the lateral margins of which are much more convex before the bases of the lateral angles.

Genus **BURRUS**, nov. (After *Aspidestrophus*, Vol. I, p. 80.)

Type, *B. spicatus*, Dist.

Distribution. Bombay.

Head elongate, much longer than broad, the lateral lobes much longer than the central lobe, meeting in front of it but cleft at their apices, their margins reflexed, a very long lateral spine between eyes and base of antennæ; eyes stylately produced; antennæ with the basal joint robust, not reaching apex of head, remaining joints slender, fifth a little longer than either third or fourth which are subequal in length; pronotum with the anterior angles longly, forwardly produced, slightly passing eyes, the lateral margins moderately laminate and strongly dentate, transversely depressed near middle, in front of which are a double series of small tubercles, the lateral angles shortly spinous, the anterior margin concave; scutellum broad, reaching abdominal apex where it is truncately rounded, the lateral margins strongly sinuate before middle, depressed on each side a little behind base; corium narrow; rostrum reaching the intermediate coxæ; abdomen beneath convex; legs unarmed, of moderate length, the femora distinctly thickened; connexivum shortly tuberculously dentate near the segmental incisures.

2703. **Burrus spicatus**, sp. n.

Black, distinctly brownishly shortly pilose on head and anterior area of pronotum; tarsi stramineous; antennæ ochraceous, the

basal and apical joints more or less piceous; anterior area of pronotum with a double transverse series of short tubercles, the posterior area thickly punctate; scutellum thickly punctate, with

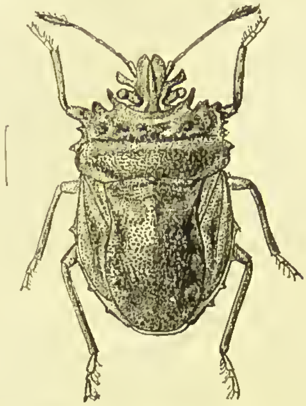

Fig. 257.—*Burrus spicatus.*

a discal somewhat obscure central longitudinal ridge which neither reaches base nor apex, foveate on each side behind base; corium more finely punctate; other structural characters as in generic diagnosis.

Length 7; breadth between pronotal angles 4 millim.

Hab. Bombay (*Dixon*).

Subfamily CYDNINÆ. (Vol. I, p. 81.)

Genus **CYDNUS**. (Vol. I, p. 90.)

2704. **Cydnus mumba**, sp. n.

Black, shining; antennæ piceous-brown, second joint longer than first, a little shorter than either of the remaining joints which are incrassate, the apical joint more pyriform; head with the margins spinulose, the lateral areas punctate; pronotum finely punctate, the anterior area centrally depressed, the lateral margins longly testaceously spinulose; scutellum finely punctate, moderately transversely ridged near base, apical area a little depressed and with a distinct callosity on each lateral margin; corium finely punctate; membrane pale castaneous; body beneath and legs black; tibiæ longly spinulose.

Length $5\frac{1}{2}$ to 6 millim.

Hab. Bombay (*Dixon*).

The distinguishing characters of this species are to be found in the scutellum and in the marginal callosity on each side of the apical area.

2705. **Cydnus tanna**, sp. n.

Black; corium stramineous; membrane hyaline; body beneath black; legs castaneous; antennæ piceous-brown, the last three joints moderately incrassate; pronotum with the anterior half glabrous, the posterior half thickly punctate; scutellum somewhat thickly finely punctate; corium sparingly finely punctate; membrane slightly passing the abdominal apex; tibiæ spinulose, tarsi pale ochraceous.

Length 4 millim.

Hab. Bombay (*Dixon*). Nepal; Pharping (*Ind. Mus.*).

This species is to be recognized from any other of those here enumerated from British India by the stramineous corium. This is not an uncommon character in the genus among the Ethiopian species.

Genus **MACROSCYTUS**. (Vol. I, p. 94.)

2706. **Macroscytus electus**, sp. n.

Head, pronotum and scutellum shining piceous-black; corium pale dull ochraceous, the inner discal area darker in hue, costal margin and a linear subcostal spot near middle black; membrane hyaline; body beneath black; antennæ, rostrum and legs castaneous-brown; antennæ with the last three joints moderately incrassate and subequal in length; margins of the head finely ciliate; lateral margins of the pronotum and corium with long spinulose hairs; pronotum glabrous with some very obscure punctures, the anterior angles transversely prominent behind eyes, a small and indistinct foveation behind head; scutellum sparsely finely punctate, the apical area transversely wrinkled; membrane passing the abdominal apex; tibiæ strongly and longly spinulose.

Length 6 millim.

Hab. Bengal; Purneah.

This species may be placed near *M. transversus*, Burm. (vol. i, p. 96).

Genus **GEOTOMUS**. (Vol. I, p. 98.)

2707. **Geotomus opacus**, sp. n.

Black, opaque; posterior angles of the pronotum sometimes testaceous; tarsi stramineous; membrane obscure hyaline, passing the abdominal apex; antennæ brownish-ochraceous, first and second joints almost cylindrical, remaining joints incrassate, second joint shortest, fifth longest; head finely granulose, ocelli prominent and placed near eyes; pronotum thickly punctate with a transverse linear impression a little behind middle, the posterior

angles distinctly though moderately nodulose; scutellum long, narrowed posteriorly, the lateral margins of the apical area perpendicular, thickly finely punctate, obscurely transversely wrinkled; corium with the posterior discal area piceous.

Length 3 millim.

Hab. Burma; Rangoon (*Coll. Dist.*).

The opaque coloration, the dense puncturation and the somewhat flattened body are the principal characteristics of this species.

Genus **CHILOCORIS**. (Vol. I, p. 104.)

2708. **Chilocoris ? assmuthi**, *Bredd.* (Chilocoris) *Ann. Soc. Ent. Belg.* xlviii, p. 407 (1904).

"Dark piceous-brown, shining, legs (excepting tibial spines), rostrum and antennæ, the coxal cavities outwardly and posterior borders of metasternum, hind angles as well as narrow outer border of the front pleura (the marginal line itself piceous-brown), and the tegmina with the epipleuræ whitish-yellow, the impressed line of the corium near claval suture and a short dotted line in inner basal angle of clavus narrowly piceous-brown; posterior margin of pronotum and the outer margin (the latter

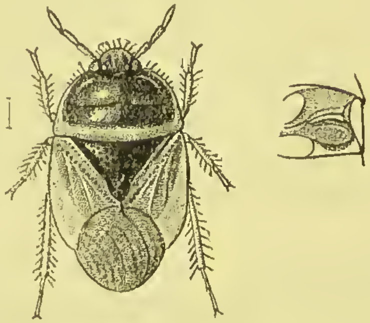

Fig. 258.—*Chilocoris ? assmuthi.*

suddenly narrowing in front and gradually disappearing) pale rusty-yellow; antennal joints 3–5 slightly infuscated; membrane hyaline; surface of vertex very slightly prominent, without distinct puncturation, the border lying before the eyes semicircular, armed with about sixteen distinct little 'stiftchen'; ocelli almost touching the inner margins of the eyes, immediately before each a bristle-bearing cavity-impression, juga in about the middle of its surface with large, flat, round cavity-impressions; pronotum just before the middle with an impressed transverse line, not or very obsoletely punctured, about 5 or 6 little dots on the posterior area

impunctate; scutellum shorter than broad at base, passing over into the moderately broad, short, rounded, pointed part nearly without observable bending, with a few scattered dots on the surface but without punctured lateral line; corium very distinctly larger than the membrane and with its acute angulated terminal corner very far overhanging the end of the scutellum hindwardly, the membranous division not very much shorter than the claval suture; corium impunctate or almost so with a few quite obsolete dots in the basal part of the clavus and inner angle of corium, an impressed line near basal suture very finely and thickly punctured, suddenly disappearing near base, costal area of corium between the distinct 'rimula' and the margin quite smooth, *without impressed line*, and without raised longitudinal veins, costal margin without recognizable bristle pores; odoriferous furrow running through to almost the margin of the body, towards end gradually curved backwards; antennal joint 2 about one-third as long as joint 3, which is only a little shorter than 4; rostrum scarcely passing anterior coxæ." (*Breddin.*)

"Length $3\frac{1}{4}$ millim."

Hab. Bombay.

This species was found by Assmuth in the domicile of *Solenopsis rufer*, Ferr.

By the kindness of Father Assmuth, the types of this and the following species, contained in the collection of Wasmann, were placed in my hands for figuring. Breddin located both in the genus *Chilocoris*, where I leave them, but the shape of the scutellum scarcely admits their inclusion.

2709. **Chilocoris? solenopsides**, *Bredd.* (Chilocoris) *Ann. Soc. Ent. Belg.* xlviii, p. 408 (1904).

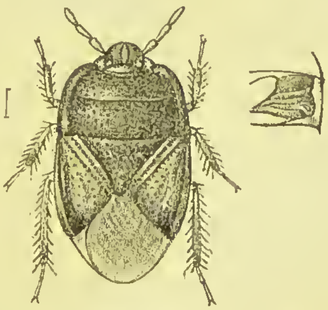

Fig. 259.—*Chilocoris? solenopsides.*

"Dark piceous-brown; tegmina rather dull whitish-yellow, the puncturation, a broad band-like border along the outer half of the

division of the membrane, as well as a narrow costal margin with the epipleura, dark piceous-brown; rostrum and legs with the outside of the costal cavities much suffused with piceous-brown, almost rusty-yellow; the narrow terminal margin of femora as well as the tibial bristles piceous-brown; antennæ dull rusty-yellow, the terminal three joints brownish; membrane hyaline; vertex sparingly punctured, smooth, the part lying before the ocelli very slightly mould-like, deepened, the anterior margin free, leaf-like, sharpened and slightly raised, seen from above somewhat semi-circular, quite without 'Randstiftchen' and 'Wimperborsten'; the grooves for the four typical bristles of the vertex small, punctiform; ocelli almost touching the inner margins of the eyes; pronotum a little before middle with an impressed distinctly punctate transverse line, the posterior area towards the front very sparsely but distinctly punctate, and the front area towards the lateral margins with some dots arranged in a more or less longitudinal row, the latter area near the front margin with a short linear longitudinal impression in the middle; scutellum resembling that of *C. assmuthi*, but with considerably coarser puncturation; tegmina also formed as in that species, but the corium with corners somewhat less strongly projecting backward, thus the corium is here comparatively shorter, even though the tip of the scutellum still always projects considerably backward, and the membranal division is distinctly rather shorter than the claval suture; corium towards end and inner angle rather finely but very distinctly punctate, also there is along claval suture a rather irregular row of fine dots; costal area impunctate, between 'rimula' and margin a very distinctly impressed, indistinctly punctate longitudinal line that runs about parallel to the 'rimula,' the intermediate space between this line and the 'rimula,' as in most Cydninæ, longitudinally vein-like, raised, costa without recognizable bristle-pores; clavus on disk with a here and there interrupted longitudinal row of very fine closely agglomerated dots not extending to the base, in basal inner angle of clavus a short impressed punctate line; odoriferous furrow nearly reaching margin of body, its extreme end emitting hindward a flap-like projection; antennal joint 2 not quite as long as 3." (*Breddin.*)

"Length $3\frac{1}{3}$ millim."

Hab. Bombay.

This species was also found by Wasmann among Ants and Termites received from Bombay.

Genus **STATANUS**, nov.

(To follow *Nishadana*, Vol. I, p. 107.)

Type, *S. membranaceus*, Dist.

Distribution. Ceylon.

Body broad, ovate; head anteriorly rounded, margined with short erect spinules, central lobe as long as the lateral lobes, ocelli

distinct, placed near eyes; antennæ five-jointed, first and second joints short and slender, not seen from above, remaining three joints incrassate; rostrum nearly reaching the posterior coxæ; pronotum large, moderately convex, deflected anteriorly, the lateral margins convexly rounded, anterior margin concave behind head, posterior margin truncate; scutellum short, lateral margins not longer than basal margin, the apex broadly rounded, foveately depressed with the margins distinctly raised; corium about as long as membrane, lateral margins a little convex, apical margin sinuate; membrane considerably passing apex of abdomen; tibiæ longly, strongly spinulose.

This genus differs from *Chilocoris* by the broadly rounded apex of scutellum, which allies it with *Nishadana*; from the latter genus it may be separated by the different shape of the pronotum, the shorter and more convexly rounded head, &c.

2710. **Statanus membranaceus**, sp. n.

Head and pronotum dark castaneous-brown, posterior and base of lateral margins ochraceous; scutellum shining black; corium pale greyish, claval and outer margins very pale ochraceous; membrane pale hyaline at basal area reflecting the dark abdomen

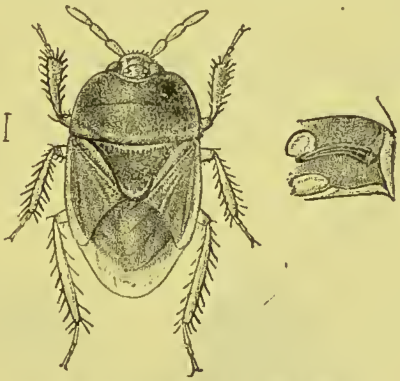

Fig. 260.—*Statanus membranaceus.*

beneath, and centrally longitudinally pale obscure ochraceous; body beneath dark piceous-brown; rostrum and legs pale ochraceous; pronotum with a subcentral transverse incised line; scutellum with some central discal rugulose wrinkles; other structural characters as in generic diagnosis.

Length $3\frac{1}{2}$ millim.

Hab. Ceylon; Peradeniya (*Green*).

Subfamily PENTATOMINÆ. (Vol. I, p. 109.)

Genus ARMATILLUS, nov.

Type, *A. verrucosus*, Dist.

Distribution. Burma.

Head broad, depressed, subtriangular, the central lobe prominent and slightly projecting; antennæ four-jointed, first joint longest, a little longer than fourth, second longer than third; rostrum short, about reaching the intermediate coxæ, basal joint enclosed in a canal on the under surface of the head; pronotum transverse, narrowed anteriorly, a transverse callous ridge on anterior area, anterior and posterior margins truncate; scutellum small, subtriangular; corium roundly deflected on each side; membrane small, not reaching abdominal apex, with a basal cell beyond which the veins are somewhat coarse and longitudinal; abdomen beneath convex, the basal segments sinuate; femora moderately thickened.

Armatillus in this enumeration may be placed at the commencement of the subfamily Pentatominæ; it does not fall in with any of the divisions I have used, and it is unnecessary to propose one for its reception.

2711. **Armatillus verrucosus**, sp. n.

Dull black; eyes, two small spots near apex of corium, and the legs testaceous; tarsi ochraceous; head thickly finely granulose;

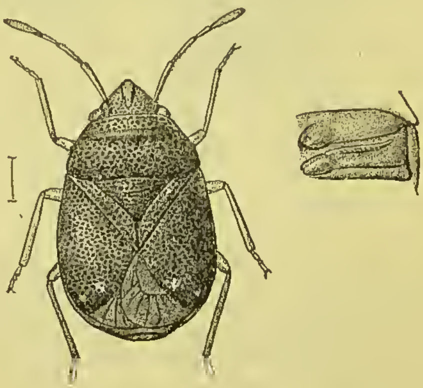

Fig. 261.—*Armatillus verrucosus.*

pronotum rugulose and punctate, the transverse callous ridge on anterior area almost smooth; scutellum transversely wrinkled;

corium very coarsely punctate; body beneath very finely pilose; other characters as in generic diagnosis.

Length 4 to 5 mm.

Hab. Burma; Bhamo (*Coll. Dist.*).

Genus DALPADA. (Vol. I, p. 110.)

Dalpada clavata (Vol. I, p. 113).

Mr. Green has now sent me two specimens of this species from Ceylon.

Add:—*Hab.* Bhim Tal, Kumaon and Dehra (*Ind. Mus.*); Naini Tal (*Lucknow Mus.*). Ceylon; Wellawaya, Peradeniya (*Green*).

2712. **Dalpada annandalei**, sp. n.

Head above black, with a central narrow longitudinal fascia pale ochraceous; pronotum black, more piceous on posterior disk, anterior margin, a central line on anterior disk, on posterior disk a number of callous markings which form an arcuate irregular fascia on each posterior lateral area, and a central cluster of irregular macular markings on disk pale ochraceous; scutellum with three linear basal spots, one central and one near each basal angle, some prominent irregular callous macular markings on disk and suffusion on apical area pale ochraceous; corium pale bronzy-brown with numerous small pale yellow spots excepting on posterior disk where it is immaculate and more piceous; connexivum black with transverse pale ochraceous spots; membrane bronzy-brown, its apex paler; body beneath dull piceous with testaceous mottlings, a somewhat large lateral spot to pro- and metanota, and marginal spots to abdomen beneath ochraceous, abdomen centrally testaceous-red; legs more or less testaceous, apices of femora, bases and apices of tibiæ and the tarsi black; antennæ black, basal joint not reaching apex of head, second joint a little longer than third, fourth and fifth palely sericeous; head almost as long as the pronotum, its apex truncately rounded, the apical lateral margins prominent, moderately roundly produced and indistinctly toothed; pronotum coarsely punctate and rugulose, the lateral angles only subnodulose, provided inwardly with two ridges, the anterior lateral margins obscurely crenulate.

Length 17 to 18; breadth between pronotal angles $8\frac{1}{2}$ millim.

Hab. Naini Tal (*Lucknow Mus.*). Simla Hills; Theog (*Annandale*).

A species to be recognized by its prominent callous yellow markings, and its intermediate position between the two sections of the species as in this work enumerated, is denoted by the only subnodulose but inwardly furrowed pronotal angles.

2713. **Dalpada melania**, sp. n.

Body above blackish; membrane shining jet-black; head above with the lateral margins, a central longitudinal ridge, and the inner margins of the eyes obscure ochraceous or testaceous; pronotum with some obscure testaceous mottlings, the most prominent of which is a central longitudinal line not extending behind middle; scutellum with a short testaceous line near each basal angle and some irregular scattered testaceous or ochraceous spots on apical area; corium with a purplish tint and finely spotted with ochraceous excepting on posterior disk; connexivum with transverse yellow spots; body beneath blackish, disk of abdomen brownish-ochraceous; legs blackish mottled with brownish-ochraceous; coxæ ochraceous, posterior tibiæ beneath with the basal two-thirds greyish; antennæ black, bases of first and fifth joints luteous, basal joint robust, not reaching apex of head, second and fourth joints subequal in length, each longer than third; head rugulose, its apex roundly truncate, anterior lateral angles prominent, obtusely acute; pronotum coarsely punctate and subrugulose, anterior lateral margins crenulate, posterior angles rounded, subnodulose, inwardly furrowed; scutellum thickly punctate, longitudinally foveately depressed at each lateral area, obscurely centrally longitudinally ridged on apical area; corium thickly finely punctate; rostrum extending beyond posterior coxæ; abdomen broadly centrally sulcate on basal area.

Length 17; breadth between pronotal angles 9 millim.

Hab. Nepal; Nagorkote.

Genus ERTHESINA. (Vol. I, p. 117.)

2714. **Erthesina robertsi**, sp. n.

Head above piceous, central lobe (excluding base and apex), lateral margins (widened anteriorly but not reaching apex) and eyes pale castaneous; antennæ brownish-ochraceous; pronotum, scutellum and corium testaceous-brown, darkly punctate, anterior marginal area of pronotum and basal area of scutellum piceous or black; membrane piceous, the apical margin paler; body beneath and legs pale castaneous, apex of rostrum piceous; head as long as pronotum, coarsely rugulosely punctate, lateral margins obscurely toothed or notched before apex; antennæ with the basal joint a little thickened, not nearly reaching apex of head, second and third joints subequal, each a little shorter than fourth; pronotum coarsely rugulosely punctate, the anterior lateral margins shortly crenulate, an obscure central carination on anterior half, the punctures near anterior margin smaller and closer together; scutellum more strongly transversely rugulose on basal area; corium thickly finely punctate; rostrum extending

to a little beyond middle of abdomen, which is centrally sulcate from base to anterior margin of sixth segment; anterior (*a*) and

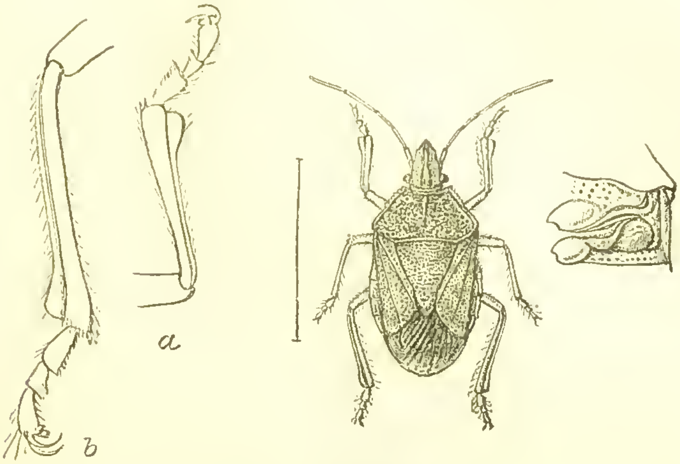

Fig. 262.—*Erthesina robertsi.*

posterior (*b*) tibiæ dilated, not lobately, but laminately towards apices.

Length $21\frac{1}{2}$ millim.

Hab. Sikhim (*Roberts, Coll. Dist.*).

The peculiar dilatation of the anterior and posterior femora is a character of this species.

Genus PARANEVISANUS.

Type, *P. subgenericus*, Dist.

Distribution. Northern India.

Allied to *Nevisanus*, Dist. (vol. i, p. 122), but lateral lobes of the head distinctly upwardly recurved; first joint of antennæ not reaching apex of head, second joint much longer than third.

This might with some propriety be classed as a *subgenus*, an abstract term of which I have no sufficiently clear conception. Genera are merely means to aid classification, a convenient method for detaching a group of species with common structural characters which are superior to those used in specific differentiation. The importance of such characters must be estimated according to the purview of the individual entomologist; they are or should be used to denote a break in sequence.

2715. Paranevisanus subgenericus, sp. n.

Head bronzy-black, rugulosely punctate, lateral margins, margins of eyes and a central longitudinal line stramineous; pronotum ochraceous, coarsely blackly punctate, the anterior and

lateral marginal areas bronzy-black, narrow margins and a central longitudinal line on anterior half stramineous; scutellum ochraceous, thickly coarsely blackly punctate; corium dull purplish-brown with a few small ochraceous spots, costal area more ochraceous thickly punctured with bronzy-black; membrane shining black; connexivum bronzy-black, coarsely punctate,

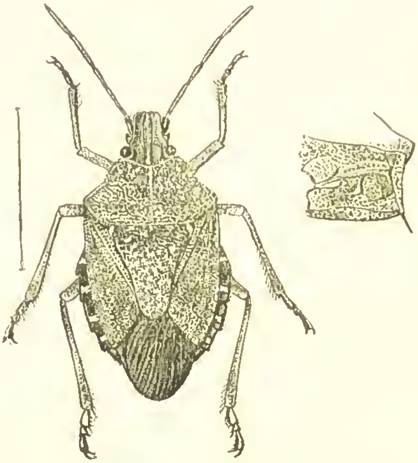

Fig. 263.—*Paranevisanus subgenericus.*

spotted with ochraceous, the spots almost impunctate; body beneath and legs ochraceous, thickly darkly punctate, head darker and thickly finely pilose, legs more or less streaked with ochraceous; rostrum passing the posterior coxæ; abdomen beneath broadly centrally sulcate at base and centrally longitudinally paler in hue, marginally spotted with ochraceous.

Length ♂ 19; breadth between pronotal angles 9 millim.

Hab. Kumaon.

Genus **SCIOCORIS**. (Vol. I, p. 125.)

Sciocoris lateralis (Vol. I, p. 126).

Add:—*Hab.* Ceylon; Trincomalee (*Green*).

The Ceylonese examples I have seen are slightly smaller than those from the other Indian habitats, and measure in length from $3\frac{1}{2}$ to 4 millim.

Genus **MENEDEMUS**. (Vol. I, p. 127.)

2716. **Menedemus vittatus**, *Dall.* (Sciocoris) *List Hem.* i, p. 133 (1851); *Dist.* (Menedemus) *A. M. N. H.* (7) iv, p. 429 (1899).

Head black, thickly coarsely punctate, with three longitudinal narrow stramineous fasciæ, one central and straight, the other

two more oblique; pronotum black, thickly punctate, the basal area more castaneous and more sparingly blackly punctate, three central longitudinal fasciæ continuous with those on head and the lateral margins stramineous, on each lateral area near posterior angles a short testaceous oblique line; scutellum black, coarsely punctate, a central straight fasciate line and the lateral margins stramineous; corium black, somewhat coarsely punctate, the costal area and apical margin more or less stramineous, the disk with pale castaneous suffusions; membrane black, its apical margin pale brownish; head beneath and sternum black, with a sublateral stramineous fascia on each side; abdomen beneath stramineous, with four longitudinal black maculate fasciæ, two central and two lateral, all more or less outwardly suffused with castaneous; legs black longitudinally streaked with stramineous; antennæ black, second joint and base of third joint testaceous; rostrum black, reaching the posterior coxæ.

Length $8\frac{1}{2}$ millim.

Hab. Bombay; Bor Ghat (*Dixon*).

Dallas described this species with doubt as from "Africa?".

Genus **HIPPOTISCUS** to replace **Hippota**. (Vol. I, p. 131.)

Plexippus, *Stål, Öfv. Vet.-Ak. Förh.* 1867, p. 505 (nom. præocc.).
Hippota, *Bergr. Rev. d'Ent.* x, p. 214 (1891) (nom. præocc.).
Hippotiscus, *Bergr. Wien. ent. Zeit.* xxv, p. 2 (1906), n. nom.

Bergroth proposed the name *Hippota* to supersede the preoccupied *Plexippus*, a course followed in this enumeration. Since then Bergroth has discovered that his new name was also preoccupied and has now substituted that of *Hippotiscus*. This will therefore have to be used.

Genus ONCINOPROCTUS.

Oncinoproctus, *Bredd. Wien. ent. Zeit.* xxiii, p. 5 (1904).

Type, *O. griseolus*, Bredd.

Distribution. N. India.

Body short, broad, subovate; head much shorter than the pronotum, the lateral and central lobes nearly equally long, ocelli about three times as wide apart from each other as from eyes; head and anterior area of pronotum vertically depressed; rostrum slightly passing the posterior coxæ, first joint reaching base of head, second joint longest; antennæ apparently of five joints, but the fifth is mutilated in my specimen, first joint not reaching apex of head, second and third joints almost equally long; pronotum between the lateral angles more than three times as broad as long, strongly deflected on anterior half, the lateral angles strongly produced, convex above, apically concave beneath, their apices truncate, the anterior angles acuminate behind and outside eyes, posterior margin concave, broader than base of scutellum; scutellum almost as long as broad at base, shorter than corium, the

apex subangularly rounded, a deep oval black foveation in each basal angle; corium short, broad, about one-third longer than the membrane which only slightly passes the abdominal apex; connexivum medially exposed, the segmental angles moderately noduloso; base of abdomen beneath with a rudimentary prolongation; femora unarmed; tibiæ not furrowed.

This genus, principally by the large black foveation in the basal angles of the scutellum, has been placed by its describer in a small group of genera not otherwise found in this fauna, and thus arranged by Stål. These genera form a group near the division Carporcoraria of this enumeration (vol. i, p. 148). By the pronotal angles the genus has affinities with *Mucanum* and *Placosternum* and the Asopid genus *Martinia*.

2717. **Oncinoproctus griseolus**, *Bredd. Wien. ent. Zeit.* xxiii, p. 5 (1904).

Pale dull luteous or greenish-yellow, thickly darkly punctate; scutellum with a black foveate spot at each basal angle; antennæ black, the basal joint luteous with its apex black; head above coarsely darkly punctate, the central lobe only slightly punctate, the anterior lateral margins a little broadly convexly ridged; pronotum very coarsely darkly punctate, the produced lateral angles broadly apically truncate, and anteriorly and posteriorly distiuctly

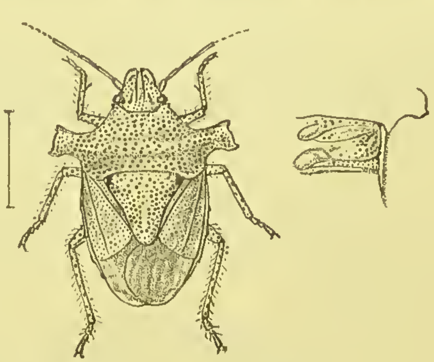

Fig. 264.—*Oncinoproctus griseolus.*

slightly toothed; scutellum rather more finely punctate, on apical area a somewhat distinct impunctate central line; corium thickly finely punctate; prosternum thickly punctate, meso- and metasterna more finely punctate on the lateral areas and near coxæ; abdomen beneath thickly finely punctate, the central longitudinal disk almost impunctate, a central piceous spot on anal segment; legs finely blackly maculate; spiracles prominent and black; other structural characters as in generic diagnosis.

Length 10½; breadth between pronotal angles 8 millim.

Hab. Katmandu (*Coll. Dist.*). Sikhim (*fide Breddin*).

Genus ÆSCHROCORIS. (Vol. I, p. 162.)

2718. **Æschrocoris fumosus**, sp. n.

Body above brownish-ochraceous; head, anterior area of pronotum and margins of produced lateral angles, and a foveate spot in each basal angle of scutellum black; antennæ ochraceous, the basal and apical joints piceous; body beneath black, here and there suffused with ochraceous; femora black, broadly medially annulated with testaceous, tibiæ with their bases black, their apices castaneous-brown and medially annulated with ochraceous; head strongly deflected, a little longer than breadth between eyes, the lateral margins slightly concavely sinuate, the anterior angles distinctly prominent, thickly coarsely punctate, a central raised longitudinal line on disk which posteriorly reaches two short basal similar lines; pronotum strongly rugulose and punctate, a somewhat obscure and irregular raised longitudinal line, a transverse series of small but prominent tubercles between the lateral angles which are a little forwardly produced, their apices notched and posteriorly distinctly dentate; scutellum with the basal third raised and rugulosely punctate, depressed before middle, remaining area smoother and more finely punctate, apex not tuberculate; corium somewhat sparingly but coarsely punctate; body beneath somewhat thickly punctate, more finely punctate on the abdomen than on the sternum.

Length $5\frac{1}{2}$; breadth between pronotal angles 5 millim.

Hab. Kumaon; Bhim Tal.

Genus EUSARCOCORIS. (Vol. I, p. 165.)

2719. **Eusarcocoris modestus**, *Dist. Ann. Soc. Ent. Belg.* L, p. 406 (1906).

Above very pale ochraceous, thickly darkly punctate; antennæ robust, pale ochraceous, second and third joints shortest and subequal in length; sternum pale ochraceous, thickly darkly punctate; abdomen beneath castaneous, with two lateral series of ochraceous spots, the lateral margins broadly ochraceous with a series of small black segmental spots on extreme lateral margin; legs pale ochraceous, posterior femora with two subapical castaneous spots; head thickly coarsely punctate; pronotum with the anterior and lateral margins levigate, the punctures less dense on anterior disk, and with a castaneous transverse shading behind each anterior angle; scutellum much more finely punctate on apical area where there is a somewhat indistinct castaneous central longitudinal fascia, the apical margin levigate; connexivum ochraceous, spotted with black; membrane hyaline and considerably passing abdominal apex; pronotal angles not prominent.

Long. 3 millim.

Hab. Ceylon; Eppawela, Nalanda (*E. E. Green*).

A small species allied to *E. capitatus*, Dist., from which it differs by the shorter, less narrowed anteriorly and more subquadrate head.

2720. **Eusarcocoris porrectus**, *Bredd.* (Eusarcoris) *Wien. ent. Zeit.* xxvi, p. 93 (1907).

"In colour and markings agreeing with *E. inconspicuus*, Herr.-Schäff. (vol. i, p. 167), on the whole rather more yellow, but apart from the different formation of the ♂ genital plate is already at the first glance distinguished by its narrow longly-produced *Neottiglossa*-like form; second joint of antennæ rather longer than third; the piceous, marginally toothed projecting middle spot to the abdomen beneath without yellowish middle stripe; intermediate and posterior femora with a few regularly arranged piceous-brown sprinklings and an indistinct cloudy spotting on the outside near the apex."

"♂. Genital plate rather smaller than in *inconspicuus*, thickly pitchy-blackly punctate, terminal border in middle with obtuse, angulated, rather deep and broad excision, the bordering lines of this angle straight, first not far from outer border curved and thus forming a slightly raised flatly bent fold; a very shallow gutta-like transverse impression follows the end border of the plate; inside the concavity is seen another plate-like bordering with a flatly-bayed truncated terminal border." (*Breddin.*)

"Length with membrane 6·25; breadth at hum. angles 3·25 millim."

Hab. Punjab; Rawalpindi (*fide Breddin*).

The above description is my only knowledge of this species.

Genus **CARBULA**. (Vol. I, p. 170.)

2721. **Carbula aspavia**, sp. n.

Above dark brownish-ochraceous, coarsely punctate; head piceous, centrally longitudinally ridged; antennæ pale castaneous, second and third joints subequal, fourth with the apical area black, fifth black with the base ochraceous; pronotum with the lateral angles strongly produced, black, robust, their apices acute and slightly upturned, the whole surface coarsely punctate, with a central longitudinal levigate line on anterior half; scutellum transversely wrinkled and coarsely punctate, a small spot near each basal angle and the apical margin ochraceous, the apical area abruptly narrowed; corium with the basal fourth of costal margin ochraceous; membrane hyaline; abdomen above black, connexivum ochraceous with black ringlets at the sutures; body beneath pale ochraceous, sparingly punctate, spiracles black; legs testaceous; rostrum reaching the posterior coxæ.

Length 9; breadth between pronotal angles $6\frac{1}{2}$ millim.

Hab. Kumaon; Bhim Tal.

I possess a single specimen of this species which may be placed near *C. producta*, Dist. The spinous pronotal angles separate it from any other species here enumerated, and give it an appearance of belonging to the genus *Aspavia*.

Genus STACHYOMIA.

Stachyomia, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 628; *id. En. Hem.* v, p. 89 (1876).

Type, *S. vulnerabilis*, from the Philippines.

Distribution. Oriental and Malayan Regions.

Body broadly ovate, short, broad, convex beneath; head short, strongly deflected, lateral margins more or less concavely sinuate, central lobe a little longer than the lateral lobes and moderately projecting; ocelli near eyes; rostrum slightly passing the posterior coxæ; antennæ little more than half the length of the body, basal joint not reaching apex of head; pronotum convex, before middle strongly deflected, anterior margin not callously elevated, lateral angles spinulosely produced; scutellum moderately convex, a little shorter than the corium, apex broad, lateral margins sinuate near middle; prosternum simple; mesosternum distinctly carinate odoriferous apertures slender, long, transverse; abdomen a little broader than the hemelytra; legs of moderate length, unarmed; posterior tarsi with the first joint short, first and second together about equal in length to that of apical joint.

Allied to *Hoplistodera*, from which it may be separated by the carinate mesosternum.

2722. Stachyomia thamada, sp. n.

Head above flavescent, smooth, shining, the lateral areas testaceous, darkly punctate, extreme lateral margins and the

Fig. 265.—*Stachyomia thamada.*

margins of the lateral lobes black; pronotum shining testaceous, coarsely darkly punctate, the lateral margins broadly, a large spot on the anterior disk, and some transverse spots between the

lateral angles flavescent, callous, smooth and shining; scutellum pale testaceous, with two somewhat large basal spots and two similar spots on each lateral margin black, a few black punctures on disk, and some coarsely prominent ones on the posterior lateral margins; corium pale tawny-brown, thickly punctate; membrane pale hyaline shaded with pale fuscous; connexivum ochraceous with prominent kblac spots; body beneath and legs pale ochraceous, a spot at lateral margins of mesosternum, spots to lateral margin of abdomen beneath, the basal spot largest, and a spot on anal segment, black; pronotal angles spinously transversely produced, subsanguineous, their apices black; pronotum with a pale central longitudinal line; antennæ flavescent, second joint shorter than third.

Length 6½; breadth between pronotal angles 5 millim.

Hab. Burma; Rangoon (*Coll Dist.*).

Allied to *S. luteonaria*, Dist., but differing by the less sinuate lateral margins of the pronotum, shorter pronotal spines, different markings to the scutellum, &c.

HOPLISTODERA RECURVA, Dist. (Vol. I, p. 178.)

I have seen more specimens of this species since I described it, and there is a not infrequent varietal form in which there are two large dark spots very narrowly divided on the apical area of the scutellum.

To the habitat given may be added Nepal.

EURYDEMA LITURIFERUM, Walk. (Vol. I, p. 191.)

In addition to the varieties of this variable species, Breddin (Wien. ent. Zeit. xxvi, p. 94, 1907) has described two other forms from Kashmir, to which we think he has unnecessarily given distinct names, viz. *hypomelan* and *hypopœcilum*.

Genus **PARASTRACHIA**.

Parastrachia, *Dist. Tr. E. S.* 1883, p. 424; *Schout. Wytsm. Gen. Ins.* fasc. lii, p. 54 (1907).
Asopus, *Horv.* (*nec Silb.*) *Termész. Füzetek*, xxii, p. 374 (1899).
Amyotea, *Horv. nec Ellendr. tom. cit.*

Type, *P. japonensis*, Scott, from Japan.

Distribution. Eastern Palæarctic and Oriental Regions.

Body elongate and ovate; head large, the lateral lobes longer than the central lobe, not meeting in front, the lateral margins slightly ampliated and very strongly reflexed; antennæ with the basal joint passing the apex of the head; pronotum with the lateral margins reflexed, the anterior lateral margins ampliated, the anterior angles subacute, the posterior angles somewhat broadly rounded and subprominent; scutellum long, the lateral margins almost straight, the apex attenuated, the basal portion moderately gibbous

from which a central, longitudinal robust carination extends to near apex; corium with the lateral margins moderately convex; membrane passing the apex of the abdomen; rostrum passing the posterior coxæ, basal joint very slightly passing base of head; abdomen with a prominent central longitudinal ridge, but without a basal spine.

Dr. Horváth (*supra*), probably without examining anything but a mutilated specimen, stated that the genus really belonged to the Asopinæ and to the genus *Asopus* = *Amyotea*. Dr. Schonteden has already shown (*supra*) that *Asopus* and *Amyotea* are distinct genera, and have nothing to do with *Parastrachia*, which he also considers I rightly placed in the Pentatominæ.

2723. **Parastrachia nagaensis**, sp. n.

Body above testaceous-red; antennæ, eyes, base of head, a large transverse discal spot on anterior area of pronotum, scutellum (excluding apex), inner basal margin of clavus, a rounded discal spot to corium and membrane (excluding apical and lateral margins) black; body beneath testaceous-red; rostrum, legs, disk of sternum, and transverse fasciæ to abdominal segments, black; second joint of antennæ very much longer than the third joint, fifth joint mutilated

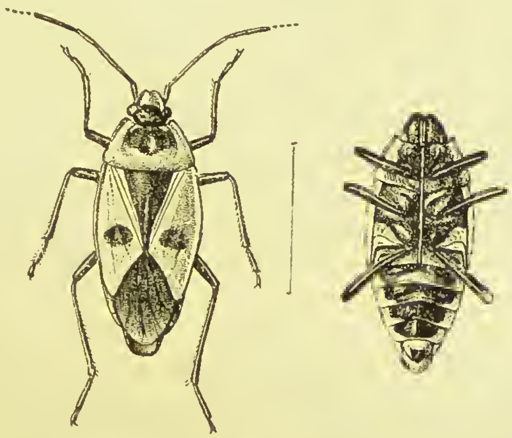

Fig. 266.—*Parastrachia nagaensis.*

in the four specimens now before me; pronotum sparsely, corium more thickly finely punctate; scutellum transversely striate, its central base levigate, the posterior central carination very robust.

Length 16 to 19 millim.

Hab. Assam; Nága Hills (*Doherty*).

Allied to the Japanese *P. japonensis*, Scott, but differing structurally by the much greater length of the second joint of the antennæ compared with that of the third, the more globose base of head, &c.

Genus PLACOSTERNUM. (Vol. I, p. 209.)

2724. **Placosternum bos,** *Dist. Ann. Soc. Ent. Belg.* L, p. 406 (1906).

Above ochraceous, punctured and mottled with black; antennæ ochraceous, apices of fourth and fifth joints black, second and third joints black, their bases ochraceous, third and fourth joints longest and subequal in length; head with scattered coarse black punctures, its surface and anterior area and lateral angles of pronotum palely testaceous; pronotum rugulose, coarsely blackly punctate, some of the punctures confluent on basal half and there forming four irregular spots, a longitudinal ridge on central disk, lateral angles broadly produced, their apices truncate, toothed anteriorly and posteriorly, the anterior tooth preceded by a sulcus, lateral margins coarsely serrate; scutellum very coarsely punctate at base, more finely punctate beyond base where it is very distinctly depressed, the disk testaceous; corium thickly blackly punctate, excepting a nearly impunctate lateral space a little beyond base, and some confluent punctate spots on its apical area; membrane bronzy-brown, the veins more or less suffused with black; connexivum blackly punctate, the apical segmental angles black; body beneath and legs ochraceous, blackly punctate, disks of meso- and meta-sterna, and a longitudinal central abdominal fascia, black; coxæ and bases of femora impunctate, lateral margins of abdomen with more or less well defined ochraceous spots; rostrum reaching the intermediate coxæ.

Length 20; breadth between pronotal angles 16 millim.

Hab. Ceylon; Maskeliya (*Green*).

Allied to *P. urus*, Stål, but larger, more elongate, scutellum more strongly basally depressed, head with the apices of the lateral lobes much more rounded and upwardly recurved, the produced pronotal angles with their apices spinously produced both anteriorly and posteriorly.

GLAUCIAS to replace Zangis. (Vol. I, p. 221.)

The generic name *Zangis* having recently been found to be preoccupied, Kirkaldy (Entomologist, 1908, p. 124) has proposed *Glaucias* as a substitute, and this must now be used.

Genus MENIDA. (Vol. I, p. 226.)

2725. **Menida pundaluoyæ,** sp. n.

Subelongate, shape and form of *M. flavoria*, Dall. Head pale ochraceous, with the lateral margins and four longitudinal series of punctures black, thus defining five longitudinal pale ochraceous areas; pronotum pale ochraceous, sparingly coarsely brownly punctate, with two transverse callous spots margined with black

punctures near anterior margin ; scutellum pale ochraceous, a large triangular basal spot, a few scattered punctures, and a spot on lateral margins before apex piceous ; corium pale ochraceous, thickly brownly punctate ; membrane hyaline, reflecting the dark abdomen beneath ; body beneath and legs ochraceous, the first with a central macular and sometimes a sublateral fascia on each side, and the spiracles black ; apex of rostrum black, just passing intermediate coxæ ; antennæ ochraceous, second and third joints shorter than fourth and fifth ; abdominal basal spine long, reaching the intermediate coxæ.

Length 6 millim.

Hab. Ceylon ; Pundaluoya (*Green*).

2726. **Menida wellawayæ,** *Dist. Ann. Soc. Ent. Belg.* L, p. 407 (1906).

Ochraceous, thickly blackly punctate; head thickly blackly punctate, with five longitudinal levigate fasciæ on anteocular area, two on postocular area inside ocelli, and one at inner margin of eyes, which are castaneous with their margins ochraceous; pronotum with the anterior and lateral margins narrowly ochraceously levigate, the black punctures in many places confluent, and with two shining black transverse spots punctately margined on anterior area ; scutellum ochraceous with castaneous markings, with a large black spot on basal area, and with two contiguous black spots on apical area, the apical margin ochraceously levigate ; corium darkly punctate, a spot on disk and the apical area black ; membrane greyish, its basal area black ; body beneath and legs ochraceous, sternum and abdomen with a broad submarginal black fascia, anal segment black, with three ochraceous spots ; rostrum reaching the intermediate coxæ ; antennæ with the third joint slightly longer than the second, fourth and fifth longest and subequal in length ; ventral spine long, reaching the intermediate coxæ.

Length 6 millim.

Hab. Ceylon ; Wellawaya (*Green*).

Allied to *M. labecula,* Dist. in shape and form.

2727. **Menida cingalensis,** *Dist. Ann. Soc. Ent. Belg.* L, p. 407 (1906).

Head, pronotum and scutellum castaneous, finely thickly punctate : head thickly blackly punctate, with the anteocular area ochraceous, the margins of the lobes and central punctures on lateral lobes castaneous, inner margins of eyes and five longitudinal fasciæ on postocular area ochraceously levigate ; pronotum with anterior and lateral margins narrowly ochraceously levigate, with two transverse dark fasciæ each containing two small ochraceous spots on anterior area ; apical margin of scutellum creamy-white ; corium pale ochraceous, darkly punctate, apical marginal area castaneous ; membrane hyaline with fuscous suffusion at base ; body beneath and legs ochraceous, lateral areas of sternum and abdomen castaneous or black, sixth and anal abdominal segments castaneous

or black: antennæ ochraceous, third joint a little longer than second, fourth and fifth joints longest and subequal in length; ventral spine reaching posterior coxæ; rostrum reaching posterior coxæ.

Length 6 millim.

Hab. Ceylon; Peradeniya (*Green*).

In shape and form allied to the preceding species.

Subfamily ASOPINÆ. (Vol. I, p. 243.)

Genus CAZIRA. (Vol. I, p. 245.)

2728. **Cazira bhoutanica**, *Schout. Ann. Soc. Ent. Belg.* li, p. 39 (1907); *id.* (subgen. Metacazira) *Wytsm. Gen. Ins.* fasc. lii, p. 23 (1907).

Body above brownish-ochraceous; basal area of head between the eyes black, divided medianly by a brownish-ochraceous line; anterior area of the pronotum black, the anterior and lateral margins and the callosities brownish-ochraceous; scutellum discally strongly perpendicularly gibbous, black in front, ochraceous behind, the apical area paler ochraceous, darkly punctate; corium brownish-ochraceous, darkly punctate, with a large discal violaceous-black spot; membrane piceous, interior and outer margins partially but broadly palely brownish-grey; body beneath violaceous-black, prosternum mostly ochraceous; margins of meso- and metasterna and a longitudinal spot on each lateral area ochraceous; abdomen with the spiracles surrounded with an ochraceous ring, the anal segment ochraceous with a violaceous-black spot; legs ochraceous annulated with violaceous-black, anterior dilated tibiæ violaceous-black with an ochraceous spot at base; antennæ more or less piceous; pronotum with a distinct central tubercle near base; scutellum with the disk strongly perpendicularly gibbous, its posteriorly raised apex terminating in two compressed lobes.

Length incl. membrane 9·5 to 10·75 millim.

Hab. Bhutan (*fide Schouteden*): Piykotgovo (*Brit. Mus.*).

2729. **Cazira breddini**, *Schout. Ann. Soc. Ent. Belg.* li, p. 41 (1907); *id.* (subgen. Metacazira) *Wytsm. Gen. Ins.* fasc. lii, p. 23 (1907).

"Flavescent, more or less pale or tinted with brown, the punctuation brown or blackish, the head black as far as before the eyes with the exception of a median band and a callosity along each eye anteriorly; pronotum mostly uniformly dark, the medial carination pale; scutellum mostly uniformly dark, especially the basal half,

the tops of the gibbosities often pale; corium darker in the costal area, the disk with a posterior somewhat small brown or blackish-brown spot; membrane brown, excepting each edge and a marginal convex spot at the internal edge; connexivum brown or greenish-black, with a metallic reflection more or less accentuated, the apical part of the segments pale; mesosternum laterally black; abdomen beneath, on disk at least, of a brilliant black tinted with metallic green—often also the fourth and fifth segments, sometimes also the third, are uniformly outwardly so (or marked with black), the black coloration of the disk extends less outwardly on these segments than on the preceding ones, the sixth segment black from the base only to the middle; stigmata dark; the basal spine always pale (sometimes the disk is spotted on the third segment with flavescent); the anterior legs have their front pale flavescent, the top of the tibial dilatation black (more or less) in the distal half; the front of the posterior legs, contrary to the femora and tibiæ, is of a brilliant black with metallic green, violaceous or blue reflections, the top of the tibial dilatation flavescent from the base to about the middle; anterior tarsi black or blackish-brown with the exception of a spot on the first joint, the second joint entirely and the base of the third; intermediate and posterior legs more or less strongly dark, the femora with the apical part (except the apex of the same above) and a submedian or 'ponémedian' annulation (posterior femora) flavescent, the tibia with the base of a 'ponémedian' annulation flavescent, the apex of a deeper colour; antennæ brown, the first joint darkened in part, the fourth of a deep pitchy-brown, except at the base, the fifth of a piceous brown or black, the basal part flavescent." (*Schouteden.*)*

"Length incl. membrane 9–11 millim."

Hab. Bhutan; Maria-Basti (*fide Schouteden*).

I have not seen this species.

Genus BREDDINIELLA.

Breddiniella, *Schout. Ann. Soc. Ent. Belg.* li, p. 44 (1907); *id. Wytsm. Gen. Insect.* fasc. lii, p. 23 (1907).

Type, *B. insignis*, Schout.

Distribution. Bhutan.

"The body is fairly convex (moderate otherwise) above and below; head shorter than the pronotum, a little convex at base, central and lateral lobes almost of the same length, the lateral lobes angularly rounded at apices, a little concave, lateral margins

* Schouteden also gives a lengthy structural diagnosis, of which our space and method does not allow the reproduction.

reflexed, distinctly sinuate, leaving the insertion of the antennæ visible above; eyes a little prominent, contiguous to the pronotum; rostrum reaching the base of the abdomen, not very robust, second joint shorter than the following joined together, subequal to the fourth taken alone, which is distinctly longer than the third; antennæ of five joints, simple, first joint almost reaching the apex of the head, second slightly shorter than the third; pronotum more than twice as broad as long, with smooth projections and pads formed in regular pattern, anterior angles prolonged into a kind of robust spine directed a little obliquely in front, receiving inwardly the eyes, the anterior lateral margins distinctly sinuated about the middle, the anterior part curved outwardly, with a marginal carination effaced behind, but well accentuated on the anterior convex portion where it forms some obtusely projecting teeth, lateral angles sinuated somewhat profoundly, prolonged in front in a long acute spine directed transversely (a little oblique anteriorly); posterior angles dentate; scutellum longer than broad, the apical portion broad (broader than the corium at apex), rounded, the sides scarcely convergent, in the basal angles a distinct impression, bordered inwardly by a strongly distinct callosity which is also connected to a spiniform projection which is found near the median line, the two projections are joined together at base, forming an elevated pad which bears two acute spines with a little divergence between them; elytra long, the membrane strongly passing the abdominal apex; corium longer than the scutellum, leaving the connexivum outwardly exposed; orifices prolonged in a somewhat short furrow elevated and callous, the furrow itself is not otherwise visible towards the base and appears as continuing by a non-excavate callosity; mesosternum with a median carination not very accentuated; legs with the anterior femora armed with a strong acute spine; intermediate and posterior femora unarmed but exhibiting, however, before the apex a sort of very obtuse projection; anterior tibiæ a little curved at apex, strongly dilated above from the basal third; intermediate and posterior tibiæ not furrowed on the upper front, subrounded, or with a slight depression at the apex; abdomen beneath a little prominent at the base, the apical portion of segments 2–5, as a matter of fact, projecting outwardly in a strong tubercle or spine 'mousse,' angles of the sixth segment a little prominent; 'des plages soyeuses' in the ♂." (*Schouteden.*)

2730. **Breddiniella insignis**, *Schout. Ann. Soc. Ent. Belg.* li, p. 45 (1907); *id. Wytsm. Gen. Ins.* fasc. lii, p. 24, t. ii, fig. 6 (1907).

"Head of a brilliant black with a median callous flavescent longitudinal line enlarged at the base as far as the base of the central lobe, lateral lobes a little wrinkled and punctate, between the ocelli and the median line two longitudinal series

of distinct points, some points uniformly behind the ocelli; bucculæ flavescent; antennæ with the first joint piceous-brown, as is the base of the second, that and the third brownish, their articulation flavescent, as is the apex of the third which exhibits a more or less short anteapical brown annulation, fourth joint piceous, the base paler, extreme apex pale, fifth joint piceous with more than a third of its base flavescent; rostrum brownish-flavescent, the apex dark; pronotum with a callous carination, the median portion a little before the base and reaching the anterior margin forms a glossy pad, this carination is more pronounced and enlarged in front between the cicatrices and behind at its commencement where it forms a transverse tubercle which is a little continued to each margin by a feeble uniformly tufted callosity, the median carination is again enlarged but less strongly to a little distance of each of two dilatations to be indicated, and these points proceed in a uniform manner to the glossy pads, of which the anterior is situated level with the transverse line meeting the humeral spines; the posterior pad subtransverse, inclining to the level of the external edge of the spines of the scutellum, a branch leading to a reunion with the tufted subbasal callosity, a little elevated and level with the basal angles of the scutellum it is directed posteriorly to terminate by the posterior teeth of the pronotum; the anterior pad is directed a little behind, anastomosing to the posterior pad, forming also a small cell close to each edge of the median line, a little continued transversely 'en s'eflaçant un peu et' forming a second cell, terminating in its fusion with a callous zone tied again to the posterior pad (in its external part) and the part 'extracicatricielle' of the anterior lobe of the pronotum, which is convex and uniformly glossy; the pronotum is for the greater part flavescent, sometimes tinted with brownish, the parts comprised between the base, the tufted subbasal and the pads which are accordingly depressed are brownish and the puncturation strongly brown, at the base of the humeral spines there is a very feeble puncturation, some points 'peuvent' also mark a transverse line uniting the lateral sinus, finally a series of distinct points mark the posterior margin, at least the cicatrices and a line bordering behind the callous anterior margin, the cicatrices are of a brilliant black, with slight green reflections; scutellum with the strong projection as well as the angular callosities, a median band continued to the basal gibbosities and two commencements of parallel bands level with the spines, also the

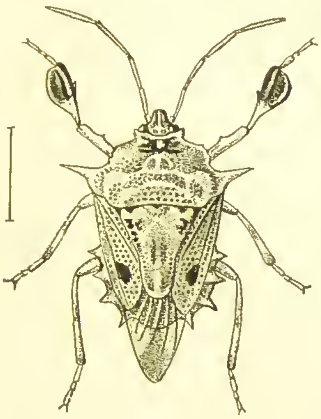

Fig. 267.—*Breddiniella insignis.*

apical edge entirely or nearly so, glossy, flavescent, sometimes tinted with brownish; in the anterior depressions of the basal gibbosities the scutellum is black, therefore on the median line (at the point of contact and fusion of two spiniform projections), in the angles and level with the glossy tuft uniting the angular callosities to the median projections, laterally between the glossy median bands and 'en arrière,' the scutellum exhibits a strong brownish or brown puncturation, more or less shining; corium of a brownish-flavescent or olivaceous tint, sometimes in part of a clear green (it is seldom the normal coloration?), a little piceous outwardly, the puncturation distinctly brownish, more so on the disk which is ornamented a little behind the middle by a large impunctate spot of a piceous or brownish-piceous coloration; membrane either with the veins broadly marked with brown in the median zone (little or hardly outwardly) and when the two membranes are superposed in repose have thus the aspect of a brown median band, distally enlarged; connexivum brown, more or less shining, excepting the level of the marginal tubercles and the extreme external margin where it is flavescent, puncturation distinct, tubercles glossy; sternum inwardly of a brilliant black or piceous, a little tinted with green, the hips, furrows, the external part, and the posterior area of the segments on the contrary flavescent, or more often tinted more or less strongly with brownish; the anterior external part of the prosternum is callous, as well as a more or less distinct straight band separating from each edge of the sternum the external flavescent zone of the interior dark zone; legs flavescent, the femora having the basal half as well as an anteapical annulation either level with the spine or the convexity replacing it, the tibiæ having an antemedian annulation and the extremity darkened, the anterior tibiæ have the distal half of a fine shining violaceous black, or blue, or green; tarsi with the first joint uniformly darkened to the apex, the last joint black, excepting the base; abdomen beneath piceous, more or less deep, tending to black (on the suture of the segments), the base (excepting the median projection) of a brilliant black, from each edge a large lateral zone and the sixth segment, excepting at the base, flavescent or brownish-flavescent, more or less callous, either wholly or less glossy and scarcely punctate as usual; the brown disk is more distinctly punctate outwardly, the puncturation effaced near the median line, it exhibits moreover from each edge a short and straight flavescent band, on the fourth segment and the distal part of the third, a little near an equal distance from the external border and the median line, which is at the same time often paler. ♂ and ♀." (*Schouteden.*)

"Length with membrane 10·5 to 11·5 millim."

Hab. Bhutan; Maria-Basti (*fide Schouteden*).

I have been unable to abbreviate the somewhat lengthy diagnosis of Schouteden, not having seen the species.

Genus CANTHECONA. (Vol. 1, p. 248.)

Cantheconidea, *Schout. Wytsm. Gen. Ins.* fasc. lii, p. 44 (1907).

Dr. Schouteden has proposed *Cantheconidea* for the reception of the Eastern species hitherto included in *Canthecona.*

2731. **Canthecona ornatula,** sp. n.

Head, pronotum and scutellum almost entirely shining metallic green; head about as long as breadth between outer margins of eyes, very coarsely punctate, the lateral areas transversely wrinkled as well as punctate, basal area between the ocelli smooth but centrally coarsely punctate, lateral margins profoundly concavely sinuate, their apices convexly rounded but widely separated in front of lateral lobes, on disk of central lobe a short ochraceous line; antennæ ochraceous, third and fourth joints with their apical halves fuscous, basal joint extending about half the distance between eyes and apex, second and fourth joints subequal in length, each a little longer than third; fifth joint mutilated in type; pronotum about half as long as breadth between pronotal angles, coarsely rugulosely punctate, the anterior lateral margins moderately rounded where the edges are ochraceous and finely crenulate, a central levigate median longitudinal line on each side of which before anterior margin is a smooth transverse brown callous spot which is centrally coarsely punctate, the posterior angles robustly angularly produced, projecting transversely, their apices testaceous; scutellum more finely punctate than on head or pronotum, strongly depressed at about middle, a spot near each basal angle and the apex pale ochraceous, an irregular central longitudinal almost impunctate brownish line, not extending through the ochraceous apex which is only very sparingly punctate; corium pale piceous-brown, the outer apical area purplish, the costal area very coarsely greenly punctate, apical area coarsely concolorously punctate, discal area somewhat closely finely darkly punctate; membrane considerably passing apex of abdomen, fuscous-brown; a large irregular pale spot on both inner and outer margins; body beneath and legs shining ochraceous, margins of head beneath, anterior margin and lateral areas of prosternum, two central smooth spots to mesosternum between the anterior and intermediate coxæ, and lateral margins to metasternum and abdomen beneath metallic green; sternum more or less coarsely punctate; femora finely spotted with piceous-brown; rostrum reaching the posterior coxæ, ochraceous, with the apical joint castaneous; base of abdomen with a very prominent basal spine, extending between the posterior coxæ, while between the anterior and intermediate coxæ the edges of the metasternum are very faintly raised; tibiæ distinctly furrowed (anterior legs mutilated in typical specimen).

Length ♂ incl. membrane 14; breadth between pronotal angles 7 millim.

Hab. Darjeeling (*Coll. Dist.*).

2732. **Canthecona humeralis**, sp. n.

Head about as long as breadth between the outer margins of eyes, with longitudinal series of wrinkled metallic green punctures, situate on the outer and inner margins of the lateral lobes, and on the basal area of the central lobe; antennæ pale testaceous, basal joint reaching very little more than half way between its base and apex of head, second, third, and fourth joints almost subequal in length; pronotum less than half the breadth between apices of lateral angles, ochraceous-brown with metallic green shadings, the anterior lateral areas, anterior margins, two transverse callous spots on anterior area, and a central longitudinal line ochraceous, very coarsely and darkly punctate, the lateral angles very strongly transversely produced, rugosely punctate, slightly toothed behind before apices which are subacute and purplish black; scutellum metallic green, coarsely punctate, anterior and lateral margins (narrowly), an oblique line near each basal angle, and the apex (broadly) pale ochraceous, the latter very sparsely darkly punctate; corium purplish-green, thickly and finely punctate, the costal area thickly produced and wrinkled with metallic green; membrane fuscous-brown, with a large pale spot on inner and outer margins; body beneath and legs ochraceous; lateral pronotal spines beneath (entirely) and the lateral areas of sternum and abdomen (more or less) metallic green and punctate; apices of posterior femora piceous-brown, and a central spot of the same colour to the last abdominal segment; rostrum about reaching the posterior coxæ, ochraceous, with its apical joint castaneous; abdomen with a short basal spine between the intermediate and posterior coxæ, the margins of the metasternum prominently raised and carinate; anterior femora strongly spined near their extremities.

Length ♂ incl. membrane 15; breadth between pronotal angles 10 millim.

Hab. Tenasserim; Mergui (*Coll. Dist.*).

CANTHECONA COGNATA. (Vol. I, p. 250.)

Cantheconidea javana, *Schout.* (*nec Dall.*) *Wytsm. Gen. Ins.* fasc. lii, p. 45 (1907).

Schouteden in sinking *cognata* as a synonym of *javana* has overlooked the structural differences I gave in my original description, and which are constant in a larger series of each species now contained in my collection.

"Very closely allied to *C. javana*, Dall., and in general appearance perfectly resembling that species, but differing in having the produced lateral angles of the pronotum almost straight, and not curved and directed forwardly, and with their apices obtusely and not long and acutely spinous as in the Javan species." (*Distant.*)

Genus **PICROMERUS**. (Vol. I, p. 251.)

Picromerus griseus, *Dall.* (Canthecona) *List Hem.* i, p. 92 (1851); *Schout. Wytsm. Gen. Ins.* fasc. lii, p. 25 (1907).

Picromerus obtusus, *Walk.* (Vol. i, p. 252, fig. 159).

The unlocalized species described by Dallas as *Canthecona grisea* must take priority in nomenclature over that of Walker.

ANDRALLUS to replace **Audinetia**. (Vol. I, p. 252.)

The generic name *Audinetia* having recently been found to be preoccupied, Bergroth (Ann. Soc. Ent. Belg. xlix, p. 370 (1906)), has proposed *Andrallus* as a substitute, and this must now be used.

Genus **INCITATUS**, nov.

Type, *I. primus*, Dist.
Distribution. British India.

Obovoid, elongate, gradually narrowing posteriorly; head elongate but shorter than the pronotum, the lateral lobes longer than the central lobe, towards apex a little convexly foliaceous, at middle concavely sinuate, eyes contiguous to the pronotum; rostrum robust and reaching the posterior coxæ, second joint scarcely longer than the third; antennæ with five joints, the first not reaching the extremity of the head, second longest, third, fourth and fifth subequal in length; pronotum about twice as broad as long, the lateral angles strongly produced, apically subtruncate, convex above, apically concave beneath, the anterior lateral margins crenulate; scutellum a little longer than the pronotum, about as long as breadth at base, obliquely straight to apical area which is convexly longitudinally continued; hemelytra longly passing the abdominal apex, membrane as long as corium, elongately narrowed; mesosternum with a slightly elevated central carination a little widened anteriorly; femora unarmed; anterior tibiæ with a distinct slender spine beyond middle; base of abdomen with a short central obtuse spine.

Allied to *Martinia*, Schout. from Thibet, from which it differs by the shorter scutellum, different structure of the pronotal angles, &c.

2733. **Incitatus primus**, sp. n.

Head metallic-green, coarsely punctate, the central lobe ochraceous and less thickly punctate; antennæ black, the basal joint and an apical annulation to fourth joint ochraceous; pronotum ochraceous, excluding anterior area thickly castaneously punctate, the lateral produced angles castaneous above; scutellum ochraceous,

coarsely blackly punctate, the apex stramineous and impunctate, a subnodulose ochraceous spot near each basal angle; corium ochraceous, coarsely blackly punctate; membrane centrally longitudinally piceous, the lateral margins broadly greyish; body

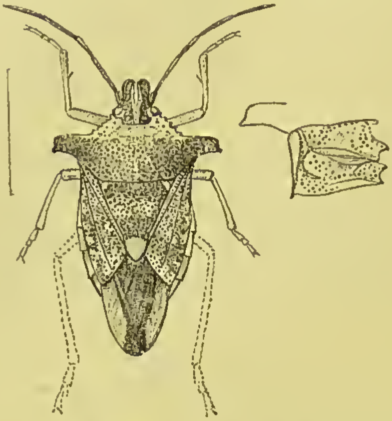

Fig. 268.—*Incitatus primus.*

beneath and legs ochraceous; mesosternum with two central longitudinal metallic-green spots; sternum sparingly coarsely punctate, abdomen much more obscurely punctate; connexivum ochraceous.

Length ♂ 15; breadth between pronotal angles 9 millim.

Hab. Dikran Valley (*Coll. Dist.*).

Genus PSEUDANASIDA.

Pseudanasida, *Schout. Ann. Soc. Ent. Belg.* li, p. 38 (1907); *id. Wytsm. Gen. Ins.* fasc. lii, p. 26 (1907).

Type, *P. fallax*, Schout.

Distribution. British India.

"Body subovoid, more convex beneath than above; head much shorter than the pronotum, about as broad with the eyes as long, nearly smooth above, the apex broadly rounded, central and lateral lobes of equal length *, lateral margins moderately profoundly sinuate; eyes not projecting, contiguous to the pronotum; rostrum robust, reaching the metasternum, second joint subequal to the following joints united, fourth almost twice equal to the preceding; antennæ of five joints, simple, first joint not reaching the apex of the head, second a little shorter than the third; pronotum less than twice as broad as long, anterior lateral margins a little thinner, distinctly crenulate and sinuate, bent outwardly and in front, anterior angles not projecting, lateral angles a little prominent, posterior angles dentate; scutellum longer than broad at base, the apical area clearly straight, the apex rounded, basal

* In Schouteden's figure the lateral lobes appear to be longer.

angles depressed; elytra passing by a little the apex of the abdomen, leaving the connexivum exposed; corium longer than the scutellum; orifices situated strongly, inwardly, near the intermediate hips, and continued in a long linear furrow to the margins, not elevated; mesosternum with a distinct carination enlarged before and behind; legs with the anterior femora exhibiting before the apex a small, somewhat obtuse spine, tibiæ with a distinct furrow; abdomen beneath obtusely prominent at base, apical angles of the segments not projecting." (*Schouteden.*)

2734. **Pseudanasida fallax**, *Schout. Ann. Soc. Ent. Belg.* li, p. 38 (1907); *id. Wytsm. Gen. Ins.* fasc. lii, p. 26, t. ii, f. 4 (1907).

"Entirely black, very uniformly bronzy, more or less brilliant (the femora more so); corium, however, unpolished with the exception of the subcostal vein; the femora at base and above inclining to piceous; head exhibiting at base a small median flavous spot close to the anterior margin of the pronotum; head, pronotum and scutellum densely (the head chiefly) reticulately punctate; the head at basal area does not, however, exhibit the

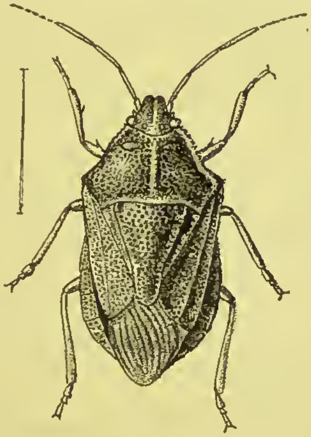

Fig. 269.—*Pseudanasida fallax.*

dense puncturation but only on the median line and on the lines before the ocelli, between these and the eyes it is also nearly glossy; pronotum a little depressed sublaterally, the disk less densely punctuate, the median line is also distinctly glossy, the posterior angles form a projecting angle and are dentate; the puncturation of the corium is somewhat regular, more sparsely behind, a little profound; connexivum finely reticulately punctate; the back of the abdomen (seen laterally at least) is of a fine brilliant bluish-green; on the sternum the puncturation is sparse and strong, excepting on the hips where it is more dense and less profound and laterally to the prosternum and metasternum; the furrow of the orifices is directed obliquely in front after the middle of the

metapleura, its margins are neither elevated nor callous, near the anterior margin the surface is uniformly rugose, without punctuation or to a feeble extent; the femora are indefinitely punctate; abdomen beneath, except medianly, is covered with a kind of fine wrinkles, and distinctly but not densely punctate, more feebly so on the margins, it exhibits slight bluish reflections, medianly it is nearly completely glossy; the outlines of the stigmata and a small spot situated behind them and continued towards the disk are impunctate and without wrinkles; antennæ with the second joint distinctly shorter than the third, that and the fourth subequal." (*Schouteden.*)

"Length ♀ incl. membrane 18; breadth between pronotal angles 9 millim.

Hab. Trichinopoly (*fide Schouteden*).

I have not seen this species and have reproduced Schouteden's description and figure.

Genus **AMYOTEA** to replace **Asopus**. (Vol. I, p. 254.)

I placed *Amyotea*, Ellenr. (1862) as a synonym of *Asopus*, Burm. (1834), as was generally done by systematists. Schouteden has recently pointed out that Burmeister's genus is not the same as that formerly proposed under the same name (Silb. Rev. Ent. vol. ii, 1834). *Amyotea* must therefore take precedence.

Subfamily TESSARATOMINÆ. (Vol. I, p. 256.)

Under this subfamily *cf.* remarks (*ante* p. 420) as to the proper location of the genus *Eumenotes*, Westw.

Genus **MESOLEA**.

Mesolea, *Bredd. Wien. ent. Zeit.* xxi, p. 99 (1902).

Type, *M. pedestris*, Bredd.

Distribution. Northern India.

"Head small, somewhat longer than breadth between the eyes, lateral lobes converging, before the central lobe contiguous, apices minutely rounded; pronotum both longitudinally and transversely subconvex, the post-humeral area much shorter than the antehumeral area, posterior angles rounded, humeral angles projecting in a prominent acute tooth, the anterior lateral margins before middle somewhat rounded, behind middle slightly sinuate, the anterior angles obscurely rounded; scutellum a little longer than broad at base, distinctly carinate, the postfrenal area broad, apex rounded; membranal suture outwardly rounded, inwardly sinuated, membrane small (somewhat shortened?), furnished with veins running from the subbasal nerve; abdomen broadly oval, on each side broadly extending beyond the edge of the hemelytra, the apical angles of the segments prominent as acuminate rectangular teeth; abdomen beneath apparently altogether destitute of a median carination,

tuberculous at base, if not obsoletely broadened, not elevated; mesosternum only slightly elevated, the elevation pentagonal, forwardly obliquely ascendant, posteriorly straightly truncate, anteriorly acuminate, extending to between the intermediate coxæ, the lateral margins just before base subcarinately elevated, disk of mesosternum quite smooth, not elevated, posterior margin alone before and between coxæ filiformly elevated; rostrum nearly reaching the middle of mesosternum; antennæ with the first joint distinctly passing apex of head, second and fourth joints nearly equally long, third shortest, fifth distinctly longer than first; wings small, subrudimentary." (*Breddin.*)

I have not seen this genus, but it is apparently closely allied to *Neosalica*, Dist., founded on a Sumatran species in 1882.

2735. **Mesolea pedestris**, *Bredd. Wien. ent. Zeit.* xxi, p. 100 (1902).

"Opaque, obsoletely punctate and rugulose, sordidly ochraceous-brown; abdomen and mesosternum ferruginous; antennæ wholly, 'plagula' to middle of surface of head above (frequently obsolete), anterior lateral margin of pronotum with the humeral dentate angles, two impressed lateral lines ('cicatrices singulas' inwardly terminating), two discal somewhat longitudinal incisions 'justapositis pronoti,' scutellum with two carinate lines on each side 'sequentibus,' the basal angles (including a small round ochraceous spot and outwardly somewhat continued in a submarginal line), also broad apical edge of corium towards basal costal area, broad fasciæ to connexivum occupying the incisures above and beneath, two transverse impressed lines 'cicatricalibus' to the abdomen above, subimpressed punctures 'pseudoincisurarum extremitatem exteriorem notantibus,' margins of the spiracles, a median band to abdomen beneath composed of elongate spots, also edge of anal segment of the female, evaporative area with other small spots to pleura, legs (double bands to femora either internal or external excepted), also rostrum and apex of head beneath, black or blackish; membrane subsordidly ochraceous, the interior angle towards base infuscate.

"Antennæ a little shorter than half the length of the body, first joint than third (nearly third part) longer, second than fourth scarcely longer, fifth than third twice longer." (*Breddin.*)

"Length $22\frac{1}{2}$ to $27\frac{1}{2}$ millim."

Hab. Sikhim (*fide Breddin*).

I have not seen this species. Dr. Breddin as 'Oberlehrer an der latein' describes in a classical latinity, rather above the usual dog-latin of most poor naturalists; certain expressions in the above diagnosis I have therefore reproduced as written.

Genus AURUNGABADA.

Aurungabada, *Dist. Ann. Soc. Ent. Belg.* L, p. 408 (1906).

Type, *A. singularis*, Dist.

Distribution. Bombay.

Head longer than pronotum, longer than broad, deeply transversely incised between eyes, the lateral lobes broad and subangularly ampliate, about as long as the central lobe which is prominent, the anteocular much longer than the postocular area, ocelli situate on the posterior margin and much nearer eyes than to each other; antennæ inserted at the extremity of a broad groove in front of eyes, basal joint moderately thickened, not reaching apex of head, third joint longest, fourth a little shorter than fifth which has an apical hair-like appendage, fourth and fifth joints distinctly sulcate; rostrum of three joints, just passing posterior coxæ; pronotum short, its posterior margin straightly truncate, its anterior margin grooved for the reception of the

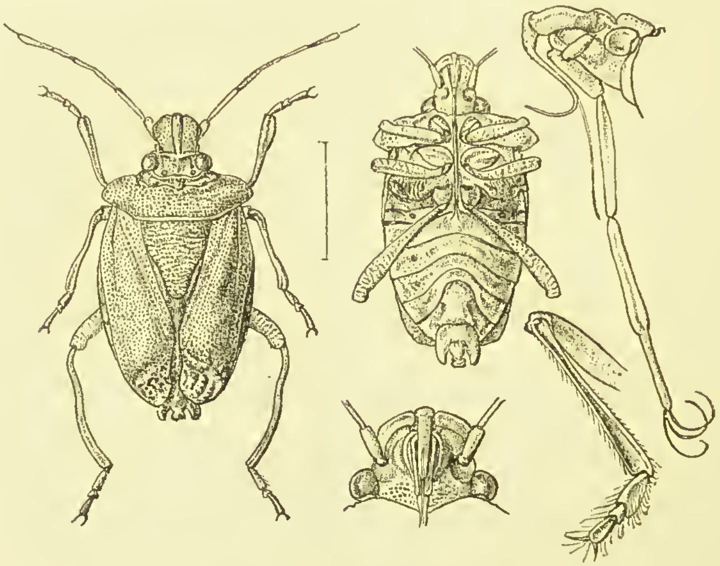

Fig. 270.—*Aurungabada singularis.*

head, the lateral areas somewhat broadly produced; scutellum slightly less than half the length of abdomen; corium long, membrane very short; posterior and intermediate tibiæ considerably curved and bent, anterior tibiæ a little dilated at apices, all the tibiæ strongly longitudinally sulcate; femora moderately thickened, the intermediate and posterior slightly curved; tarsi

three-jointed ; metasternal proeess short, grooved, not extending beyond the intermediate eoxæ.

The exposed spiracles of the basal segment of the abdomen locates this singular genus in the Tessaratominæ; it cannot well be located in the Eusthenaria, and must form the type of a new division.

2736. **Aurungabada singularis**, *Dist. Ann. Soc. Ent. Belg.* L, p. 408 (1906).

Above pale testaceous, the corium pale oehraceous; lateral margins and central lobe to head, and lateral margins of pronotum more or less earmine-red; membrane somewhat purplish ; body beneath and legs dull oehraeeous, femora aud abdomen beneath more or less sprinkled with small carmine-red spots ; antennæ ochraeeous, third and fifth joints shaded with earmine-red, second and fifth joints subequal in length ; anteocular portion of head very coarsely punetate and rugulose, postoeular area more finely punctate; pronotum transversely rugulose, foveate at anterior margin; scutellum transversely rugose; corium thickly finely punctate ; membrane with sealy laminate proeesses ; anal appendage in ♂ three-lobed, the lateral lobes eurved.

Length 13 ; exp. pronotal angles 7 millim.

Hab. Bombay (*Dixon*).

Genus EMPYSURUS.

Empysurus, *Martin, Bull. Mus. Paris*, 1904, p. 315.
Mussafira, *Oshan. Ann. Mus. Zool. Acad. Imp. Sci. St. Pétersb.* xii, p. 414 (1907).

Type, *E. depressus*, Martin.

Distribution. S. India; Ceylon.

Body depressed, subovate, anteriorly and posteriorly narrowed; head with the lateral lobes broad, longly meeting in front of the central lobe whieh is short and triangular, the ocelli on each side of its basal margin; antennæ robustly five-jointed, basal joint short, not nearly reaching apex of head, seeond, fourth, and fifth subequal in length and each longer than third; rostrum short, reaching the anterior eoxæ; pronotum flatly anteriorly deflected, narrowed to eyes, the lateral margins rounded, anterior margin sinuate, posterior margiu truncate ; seutellum large, subtriangular, its apex narrowed but apieally truneate ; corium not reaching the lateral abdominal margins, the apieal margin broadly irregularly rounded ; membrane with numerous longitudinal veins ; eonnexivum broadly prominent; abdomen beneath eentrally ridged on each side of whieh it is obliquely defleeted, a prominent abdominal basal spine which enters the posterior eleft of a sternal

process placed between the intermediate and posterior coxæ and which is almost connected with another process situate between the anterior and intermediate coxæ.

2737. **Empysurus depressus**, *Martin, Bull. Mus. Paris*, 1904, p. 316.

Dull ochraceous with a slight olivaceous tint; outer margins of the lateral lobes paler ochraceous before which is a slightly piceous margin; pronotum more or less piceous at basal margin; scutellum rather brighter and paler in hue; connexivum pale testaceous; antennæ somewhat discoloured and darker in hue, joints as described in generic diagnosis; above very thickly and finely punctate; membrane not quite reaching apex of abdomen; body beneath more finely and indistinctly punctate than above; other characters as described in generic diagnosis.

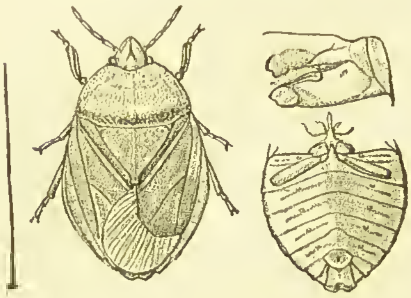

Fig. 271.—*Empysurus depressus.*

Length 25 to 26; breadth between pronotal angles 12 millim.

Hab. S. India; "Mt. Kodikanel and Trichinopoly" (*fide Martin*).

I am indebted to the kindness of Prof. Bouvier for the opportunity of figuring this species, which was described by our late colleague Joanny Martin.

2738. **Empysurus johni**, *Oshan.* (Mussafira) *Ann. Mus. Zool. Acad. Imp. Sci. St. Pétersb.* xii, p. 416 (1907).

"Body bare, above thickly and finely punctate, especially the hemelytra, but the scutellum is rather coarser and not so closely punctate; antennæ yellowish-brown, joints cylindrical, only the fourth joint somewhat depressed and provided with a slight gutta, fourth and whole of fifth very shortly bristled; sides of head very slightly expanded; pronotum in middle of front border expanded, front lateral borders outwardly bent, lateral angles rounded off, posterior angles very obtuse, posterior margin nearly straight; scutellum in basal angles with a non-punctate flat smooth triangle, the part behind frena almost quadrate, more sparingly punctate than rest of surface; opaque part of base of membrane narrow, olive-green; membrane vitreous, uncoloured, the veins at the base in the chitinous part of membrane indistinct, and consequently the question as to their origin cannot be answered, although the presence of small meshes on the border of the

opaque part makes it very probable that the veins originally sprang from a series of cells; the greatest breadth of the abdomen is somewhere between the tips of the third segment and is there considerably longer than at the lateral angles of the pronotum; connexivum very broad, from base of second segment onwards free from the hemelytra, side borders sharpened, slightly arched and at the borders between the segments somewhat curved inwardly, consequently the whole abdominal border seems slightly festooned, along lateral borders runs a sharply-defined very narrow and shallow gutta, inner part of connexivum just as finely and thickly punctate as hemelytra, towards the lateral

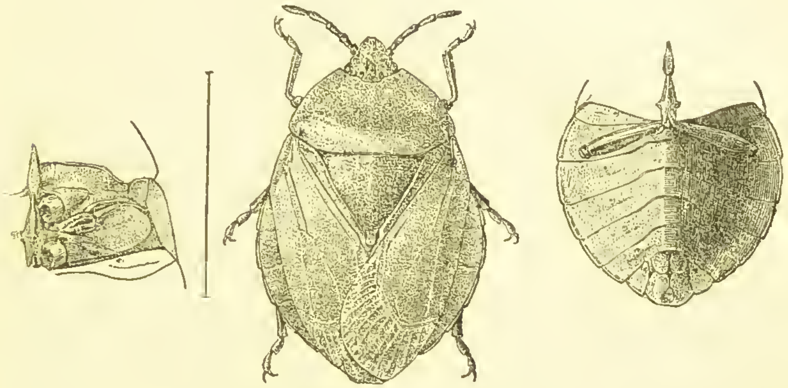

Fig. 272.—*Empysurus johni.*

borders the punctures become coarser and wider apart, the whole connexivum olive-green, only the lateral gutta bordered by two fine black lines of which the outer one includes the ridge of the side margin; posterior angles of the sixth abdominal segment not dentately produced; body beneath punctate and finely wrinkled, the wrinkles extremely fine on the ventral disk which is more coarsely and sparingly punctate on the sides, on the keel the disk is nearly smooth and shining; the colour of the underside is somewhat yellowish-green, only the middle of the base of the abdomen, from the third segment onward, the meta- and mesosterna and the sides of the posterior and intermediate coxæ are brownish, the circumference of the stigmata is dark brown; femora yellowish-green, tibiæ greenish, the lower ridge very strongly bristled, tarsi yellowish, the second joint slightly longer than the first, apices of claws deep brown." (*Oshanin.*)

"Length 26; greatest breadth 18 millim."

Hab. Ceylon; Kandy (*O. J. John—fide Oshanin*).

I have not seen this species, but Prof. Oshanin has kindly had a beautiful drawing (here reproduced) made from the unique type.

Subfamily PHYLLOCEPHALINÆ. (Vol. I, p. 289.)

Genus SCHIZOPS. (Vol. I, p. 293.)

2739. **Schizops nepalensis**, sp. n.

Dark castaneous-brown; a broad arcuate transverse fascia between the lateral angles of the pronotum, a broad longitudinal lateral fascia (sublateral for nearly half its length to scutellum) and lateral margins to corium stramineous; connexivum pale testaceous; membrane greyish with two outer veins dark piceous; body beneath pale brownish, legs piceous brown; spiracles white margined with black; connexivum beneath pale testaceous palely margined on each side; antennæ black, basal joint shortest and brown, second longest, third shorter than fourth; head thickly punctate, subrugulose, lateral lobes strongly cleft at apices; pronotum with the lateral margins shortly obtusely dentate, narrowly ochraceous and inwardly narrowly margined with black as is the anterior margin of the transverse stramineous fascia, thickly coarsely punctate behind head, subrugulose and punctate on basal half, lateral angles only slightly prominent and almost rounded; scutellum with the central dark area thickly coarsely punctate, the lateral areas coarsely transversely wrinkled; corium thickly punctate, less so on the costal marginal area; body beneath thickly finely punctate; rostrum reaching the anterior coxæ, between anterior and intermediate coxæ two dark longitudinal spots; abdomen beneath with a faint pale central longitudinal fascia: intermediate and posterior tibiæ with outer pale longitudinal stripes.

Length ♂ 18; breadth between pronotal angles $9\frac{1}{2}$ millim.

Hab. Nepal Terai; Dhakna Bogh.

Allied to *S. insignis*, Walk., but body more elongate and narrower; pronotal angles less produced and more rounded; membrane without black spots; colour markings of pronotum different.

Subfamily UROSTYLINÆ. (Vol. I, p. 303.)

Genes UROSTYLIS. (Vol. I, p. 306.)

In my synopsis of the genera of the Urostylinæ (vol. i, p. 303) I used as a character for this genus, "basal joint of antennæ nearly as long as head and pronotum together." Dr. Reuter has since (Ent. Month. Mag. 1905, p. 65) remarked that the character is not constant, and the description of the following two additional species shows that his objection is a well-founded one. In these species, *U. instructivus* and *U. sinensis*, the first joint of the antennæ is only about as long as the pronotum.

2740. **Urostylis instructivus**, *Reut. Ent. Month. Mag.* 1905, p. 65.

"Green, glabrous; head smooth, ocelli distinct; pronotum remotely blackly punctate, apical margin reflexed, laterally thinly edged, apex somewhat slightly rounded, behind middle broadly sinuate; scutellum with the basal area elevated, triangular, sparsely blackly punctate, apical portion depressed, moderately strongly blackly punctate; hemelytra smooth, only 'clavo serie scutellari endocoriosque serie' as well as claval suture here and there punctate, ectocorium sparsely strongly punctate; membrane smoky-hyaline; antennæ slender, greenish, first joint almost equally as long as the pronotum, second a little longer than first, third about twice as short as second, black (remainder wanting); rostrum reaching the middle of the mesosternum; apices of tibiæ and tarsi above blackish; body beneath smooth; genital segment in female projecting on each side in a horizontal process, its apex somewhat bent." (*Reuter.*)

"Length ♂ 9 millim."

Hab. Silhet (*fide Reuter*).

2741. **Urostylis sinensis**, *Walk. Cat. Het.* ii, p. 412 (1867); *Dist. A. M. N. H.* (7) vi, p. 233 (1900).

"Grass-green, fusiform, rather thinly and roughly punctured, testaceous beneath; head above ochraceous; rostrum extending nearly to the middle coxæ, tip black; first joint of the antennæ almost as long as the thorax; thorax ochraceous and slightly reflexed along each side and along the fore border, near which there is a slight transverse impression; scutellum ochraceous; legs slender; membrane of the fore wings pellucid with two brown streaks." (*Walker.*)

The colour in fresh specimens is probably uniformly pale green, in some the head above and also the anterior area of the pronotum and the scutellum (more or less) is ochraceous, the body beneath is more or less ochraceous, scarcely testaceous as described by Walker; the rostrum has its apex black and extends to between the anterior and intermediate coxæ; the first joint of the antennæ is about as long as the pronotum, the second longer than the first, third shorter than fourth, green, the apex of the third distinctly blackened; lateral margins of the pronotum nearly obliquely straight; head with a slight ovate foveation at base, from which there is a narrow sulcation on each side to base of antennæ; the pronotum and scutellum moderately coarsely punctate, the corium more finely so; membrane pale hyaline, the basal lateral margins more or less dark ochraceous.

Length incl. membrane 13 to 14 millim.

Hab. Darjeeling; Pussumbing (*Mann, Ind. Mus.*). Nepal; Chitlong.—China; Shanghai (*Brit. Mus.*).

Subfamily ACANTHOSOMATINÆ. (Vol. I, p. 313.)

Genus **PROTOPHANTASTA**. (After **Microdeuterus**, Vol. I, p. 314.)

Protophantasta, *Bredd. Ges. Naturh. Freunde*, 1903, p. 212.

Type, *P. colax*, Bredd., from Sumatra.

Distribution. Ceylon, Malaya.

Head almost as long as pronotum, about as long as breadth between eyes, lobes almost equally long, the lateral lobes with their apices rounded and inwardly deflected, the lateral margins concavely sinuate, narrower from eyes to apex, ocelli placed near base and considerably wider apart than from eyes; first joint of antennæ reaching or passing apex of head; rostrum extending to posterior coxæ, the basal joint not quite reaching base of head; pronotum anteriorly a little wider than base of head, the lateral margins oblique, gibbous posteriorly, depressed anteriorly, a transverse impressed line before anterior margin defining a slightly raised interspace; scutellum about as long as broad at base; corium longer than membrane; femora moderately thickened, tibiæ longitudinally grooved; a central raised longitudinal process between the anterior and intermediate coxæ much more developed in some species than in others; abdomen with a short basal spine variable in length, apical segment terminating in two long slightly upturned spines, posterior lateral angles of penultimate segment distinctly spinously produced; tarsi two-jointed.

2742. **Protophantasta forficuloides**, *Dist. Ann. Soc. Ent. Belg.* L, p. 409 (1906).

Head, pronotum and scutellum black; head with a longitudinal fascia on each side of lateral lobe, uniting posteriorly and narrowly reaching base, a narrow line traversing central lobe, inner margins of eyes, and a small spot on each side of ocelli, stramineous; pronotum with the lateral margins centrally developed into a lateral spot, a central spot commencing on anterior area and continued to disk, on each side of which anteriorly are two small spots, stramineous; scutellum with a large spot on each lateral area before middle, and a large subapical transverse spot which is indented anteriorly and angularly produced posteriorly, stramineous; corium very pale stramineous, darkly punctate with piceous macular apical markings; membrane hyaline; head beneath, sternum, and legs stramineous; anterior femora (excluding base), apical halves of intermediate and posterior femora, metasternum and abdomen beneath carmine-red; posterior margins of

metasternum, lateral margins and apical segment to abdomen stramineous; abdominal spines and sternal spots black, tibiæ piceous; basal joint of antennæ slightly passing apex of head, second joint about as long as fourth, a little longer than third; head more or less transversely wrinkled, punctate at base and before inner margins of eyes; pronotum strongly coarsely

Fig. 273.—*Protophantasta forficuloides.*

punctate except on anterior area and on the stramineous markings; scutellum rugulose, the stramineous markings levigate; abdominal apical spines as long as posterior femora; rostrum reaching the posterior coxæ.

Length excl. abdom. spines $6\frac{1}{2}$; exp. pronotal angles 4 millim.

Hab. Ceylon; N. C. Provinces (*Green*).

Genus SASTRAGALA. (Vol. I, p. 318.)

2743. **Sastragala smaragdina,** *Dist. A. M. N. H.* (7) xi, p. 72 (1903).

Very pale greenish; central lobe and margins of head, the transverse foveæ near anterior margin of pronotum, corium, legs above, and abdominal margins more olivaceous-green; lateral angles of the pronotum spinously produced, black, and from a line drawn between them to base the surface is thickly coarsely punctate, the punctures castaneous; scutellum with a large discal levigate ochraceous spot, remaining surface coarsely darkly punctate, apex levigate; corium with a black spot at inner angle and a lunate black fascia near outer apical margin; connexivum pale greenish, with the extreme apices of the segmental spines black; posterior margin of sixth segment black.

Closely allied in structure and markings to *S. heterospila*, Walk. (vol. i, p. 318), but with the lateral pronotal spines much more slender and acute; abdominal spine also much more acute and with its apex more removed from the sternal surface.

Length 11; breadth between pronotal angles 8 millim.

Hab. Ceylon; Kandy (*Green*).

Family COREIDÆ. (Vol. I, p. 331.)

In this family the principal taxonomic alteration requisite is the transference of the species described as *Curupira bicolor* (vol. i, p. 412) to the following family Lygæidæ. The reason for this substitution will be subsequently detailed under that family, and some allied species enumerated.

In the division *Alydaria* it was remarked (vol. i, p. 412), that its representatives in British India were very poorly represented. It has now been found possible to considerably augment the enumeration, both in genera and species.

Genus **HOMŒOCERUS**. (Vol. I, p. 355.)

2744. **Homœocerus relatus**, sp. n.

Pale greenish-ochraceous, thickly darkly punctate; connexivum, body beneath and legs pale greenish-ochraceous, the legs (excluding bases of femora) more distinctly virescent; head behind and between the ocelli almost impunctate; antennæ brownish-ochraceous or virescent, fourth joint black with nearly its basal half pale virescent, first and second joints almost subequal in length, third and fourth joints also subequal or third very slightly longer than fourth; rostrum with the third and fourth joints almost subequal in length, or third very slightly shorter than fourth; pronotum with the lateral margins nearly obliquely straight, broader at base than long, the lateral angles subangulately prominent, a faint central longitudinal line, moderately depressed near anterior margin; scutellum with a fine (sometimes very obscure) central longitudinal line; lateral margins of the corium narrowly palely impunctate and usually pale ochraceous at base, and virescent from about middle; membrane bronzy, piceous or black at basal angular area.

Length 17 to 18; breadth between pronotal angles 5 millim.

Hab. Ceylon; Haragam (*Green*).

Allied to *H. striicornis*, Scott (vol. i, p. 360), but differing in having the third and fourth joints of the antennæ subequal in length and the third and fourth joints of the rostrum also subequal.

2745. Homœocerus fraternus, sp. n.

Brownish-ochraceous, thickly blackly punctate; lateral margins of head, pronotum and corium pale ochraceous or greenish-ochraceous, impunctate; scutellum paler, a little more sparingly punctate, a small cluster of black punctures a little before apex; abdomen above bright carmine-red with a central broad longitudinal luteous fascia, the connexivum pale greenish-ochraceous; body beneath pale ochraceous, the legs and lateral abdominal margins pale greenish-ochraceous; membrane pale bronzy, the basal angular areas black; extreme apical angle to corium black; antennæ brownish, first joint longest, considerably longer than fourth, which is a little longer than third, fourth joint piceous with a broad pale subbasal annulation; rostrum with the third joint slightly shorter than the fourth; pronotum with a pale central longitudinal line, the lateral margins nearly obliquely straight, the posterior angles subacutely subprominent, more strongly punctate than the head, the basal area of which behind and between the ocelli is almost impunctate.

Length 12 to 15; breadth between pronotal angles 3 to 3½ millim.

Hab. Ceylon; Kandy (*Green*).

This species is allied to *H. albiventris*, Dall. (vol. i, p. 362), from which it structurally differs in having the first joint of the antennæ considerably longer than the fourth; it is also a smaller, narrower, and darker insect.

2746. Homœocerus javanicus, *Dall. List Hem.* ii, p. 444 (1852).
Gonocerus abbreviatus, *Herr.-Schäff. Wanz. Ins.* vi, p. 81, f. 652 (1842), nom. præocc.

"Head testaceous, very finely punctured with brown; pronotum pale dull fulvous, very thickly and finely punctured with brown, with the posterior margin greenish, the lateral angles somewhat prominent and acute; scutellum testaceous, very finely punctured with brown; coriaceous portion of the elytra dull reddish testaceous, thickly and finely punctured with brown, with the apical portion blackish, the lateral margin pale greenish-testaceous, and an indistinct broken transverse line near the apex; membrane brownish semitransparent, with the base blackish; back of the abdomen bright red, with the tip blackish; abdomen beneath yellow, with the sides greenish; breast pale green, rather thickly punctured; legs dusky testaceous, tarsi green; rostrum pale dull fulvous; antennæ dusky, with the apical portion of the last joint fulvous." (*Dallas.*)

Body elongate, narrow, the "indistinct broken transverse line near the apex" of tegmina usually coalesced into a short transverse narrow pale ochraceous fascia extending from near inner angle half way across tegmen; rostrum extending about half way between anterior and intermediate coxæ, first joint extending to about middle of head, second joint not quite reaching anterior coxæ,

third and fourth subequal in length; antennæ with the first joint about as long as the pronotum, second longer than first, third about as long as first and longer than fourth.

Length 19 to 21 millim.

Hab. Assam (*Badgley*, *Brit. Mus.*); Upper Burma (*Bingham*, *Brit. Mus.*).—Java (*Brit. Mus.*).

A species in this enumeration to be placed near *H. graminis*, Fabr. (vol. i, p. 363).

2747. **Homœocerus badgleyi**, sp. n.

Head and antennæ black; apical joint of antennæ, antenniferous tubercles, and a discontinuous transverse fascia at the region of the ocelli obscure ochraceous; pronotum and scutellum black, the first with two large dull ochraceous spots near anterior margin; corium piceous-brown, the extreme base of costal margin ochraceous; membrane bronzy-ochraceous; connexivum ochraceous; head beneath and sternum black; rostrum, a short curved line on each lateral area of prosternum, lateral and anterior margins of meso- and metasterna, trochanters, and abdomen beneath dull ochraceous, the latter with a broad, central, longitudinal piceous fascia; anterior legs piceous, bases and apices of the tibiæ and the tarsi testaceous (intermediate and posterior legs mutilated in type); head finely thickly punctate, central lobe apically deflected between the lateral lobes, finely centrally linearly sulcate; antennæ with the first joint incrassate, only a little longer than fourth, second longest, third longer than either first or fourth; rostrum about or almost reaching the intermediate coxæ, third joint slightly shorter than fourth which has its apex black, first not passing eyes, second not quite reaching anterior coxæ; pronotum thickly coarsely punctate and granulose, the lateral margins obliquely sinuate, the posterior angles subprominent, an indistinct, central, longitudinal, carinate line; scutellum coarsely punctate and granulose; corium finely punctate, the clavus more strongly so; apex of abdomen very slightly passing the apex of membrane; sternum coarsely punctate.

Length 13½ millim.

Hab. Assam (*W. F. Badgley*, *Brit. Mus.*).

The National collection contains a single example of this distinctly marked species.

Genus ASCHISTUS. (Vol. I, p. 369.)

2748. **Aschistus nepalensis**, sp. n.

Head above, pronotum, scutellum and corium obscure dull ochraceous, very thickly darkly punctate; pronotum with the lateral margins and a central longitudinal line, apex of scutellum, and about basal halves of lateral margins to corium stramineous, levigate; membrane bronzy with fuscous suffusions; body beneath and legs pale ochraceous, the sternum with a slight virescent tint;

antennæ dull obscure ochraceous, thickly, finely, darkly granulose, apical joint greyishly tomentose, the basal third fuscous-brown, basal joint stoutest, considerably longer than fourth which is shortest, second and third longest, almost subequal in length, second only slightly longer than third; rostrum scarcely passing the anterior coxæ; head above blackly granulose towards apex, the lateral margins and a short central basal longitudinal line somewhat obscurely stramineous, the lateral lobes with their apices somewhat widely divergent; pronotum elongate, about as long as broad at base, narrowing to apex, the lateral margins nearly obliquely straight, depressed anteriorly, anterior margin truncate; corium with the veins prominent; membrane not reaching the apical segment; connexivum brownish with small pale marginal spots; sternum finely obscurely punctate; lateral margins of the head beneath behind the antennæ and enclosing eyes brownish; lateral margins of the abdomen beneath broadly (and enclosing the spiracles) darker and more obscure ochraceous, before this darker margin some small irregular black spots, the whole abdomen beneath sprinkled with pale brownish and with a central longitudinal pale brownish narrow fascia.

Length 14; breadth between pronotal angles 3 millim.

Hab. Nepal; Benikhola and Bijdura; United Provinces, Naini Tal Districts.

To be readily separated from *A. brevicornis*, Dall. (vol. i, p. 369) by the short apical joint to the antennæ.

2749. **Aschistus sulcatus**, sp. n.

Head above, pronotum, scutellum and corium obscure dull ochraceous, very thickly darkly punctate; lateral margins of head and pronotum, a central longitudinal line to the latter, apex of scutellum, and about basal halves of lateral margins to corium stramineous, levigate; membrane hyaline; body beneath and legs pale ochraceous, legs somewhat pale testaceous; antennæ very pale testaceous, finely granulose, first, second and third joints distinctly sulcate, first and third joints subequal in length, second longest, fourth shortest, considerably shorter than third; rostrum distinctly passing the anterior coxæ; head above with the lateral lobes prominently upturned at their apices giving a tuberculous appearance; pronotum elongate, about as long as broad at base, narrowing to apex, the lateral margins nearly obliquely straight, anterior margin truncate; corium with the veins prominent; membrane not quite reaching the apical segment; connexivum unspotted, fuscous-brown, its outer margin narrowly pale ochraceous; sternum finely punctate, a small black spot near the intermediate and posterior coxæ; lateral margins of the head beneath behind the antennæ and enclosing eyes thickly darkly punctate; lateral margins of the abdomen beneath broadly (and enclosing the spiracles) darker and more obscure ochraceous, the

spiracles black, before the darker margins some small irregular black spots, disk finely darkly punctate.

Length $15\frac{1}{2}$; breadth between pronotal angles 3 millim.

Hab. Pegu; Palon.

In general appearance closely resembling *A. nepalensis*, but differing in the sulcated antennæ and relative proportional lengths of joints in same, the upturned subtuberculous apices of the lateral lobes of the head, &c.

Genus **NOTOBITUS**. (Vol. I, p. 370.)

2750. **Notobitus parvus**, sp. n.

Head and antennæ pale testaceous; pronotum and scutellum purplish-brown, the apex of the latter testaceous; abdomen above reddish-ochraceous with a broad irregular piceous longitudinal fascia extending from about middle to apex; body beneath, rostrum and legs pale testaceous, sternum and anal segment of abdomen purplish-brown; corium ochraceous; membrane pale dull ochraceous; antennæ with the first, second and third joints subequal in length and clothed with very short fine hairs, fourth joint slender and nearly as long as either of the two previous joints taken together; head discally thickly punctate, less so at inner margins of eyes; rostrum about reaching the base of mesosternum, first joint just passing base of head, second joint short reaching the anterior coxæ, third joint slender scarcely longer than second; pronotum thickly finely granulose, a little less so on the anterior area; scutellum (excluding apex) thickly finely granulose; corium thickly punctate; posterior femora only moderately thickened and armed beneath with about seven more or less prominent spines, commencing at about one-third from base, the three apical spines close together, a small and obscure tubercle near base; posterior tibiæ a little curved and longitudinally sulcate, anterior and intermediate tibiæ shortly tuberculously spined beneath.

Length 15 millim.

Hab. Tenasserim; Myitta (*Doherty*).

By the unicolorous legs allied to *N. marginalis*, Westw. (vol. i, p. 372), but differing by its much smaller size, different colour markings, differently coloured antennæ, &c.

2751. **Notobitus mundus**, sp. n.

Black, very shortly and indistinctly pilose; apical joint of antennæ fuscous-brown, its base (broadly) and apex (narrowly) ochraceous; margins of eyes (prominently), anterior edge of pronotum, under surface of second joint of rostrum, coxæ, bases and apices of anterior and intermediate femora, bases of posterior femora, intermediate tibiæ (excluding bases), and all the tarsi ochraceous; antennæ with the first, second and third joints sub-

equal in length, clothed with short, fine hairs, fourth joint slender, about as long as either of the two preceding joints taken together; head thickly punctate except at inner margins of eyes; rostrum with the basal joint almost reaching the anterior coxæ, second joint shorter than third and passing the anterior coxæ, third and fourth joints slender, fourth slightly passing the base of mesosternum; pronotum thickly, finely rugulose, less so on the anterior marginal area; scutellum very thickly punctate and subrugulose; corium thickly punctate; posterior femora elongate, only moderately thickened, longitudinally spined beneath, five of the spines being somewhat long and prominent, anterior and intermediate femora shortly spinous beneath; tibiæ sulcate.

Length 19 millim.

Hab. Ceylon; Kandy (*Green*).

This is the only species of the genus that I have at present received from Ceylon. It is allied to *N. meleagris*, Fabr. (vol. i, p. 371), but differs by the third joint of the antennæ being concolorous, not ochraceous at base as is generally the case in the Fabrician species, anterior tibiæ not ochraceous, basal joint of rostrum much longer, &c.

Genus **CLORESMUS.** (Vol. I, p. 373.)

2752. **Cloresmus similis**, *Dall.* (Nematopus) *List Hem.* ii, p. 425 (1852); *Stål* (Cloresmus), *En. Hem.* iii, p. 66 (1873).

"This species is very nearly allied to *C. nepalensis* (vol. i, p. 373), but has the antennæ more slender, and with the first three joints pale fulvous (fourth wanting); the lateral pieces of the anterior projection of the head more distinctly separated from the central piece; the thorax shorter and with its anterior margin wider; and the apex of the abdomen of the same colour as the remainder." (*Dallas.*)

The fourth joint of the antennæ is concolorous with the preceding joints, first joint a little shorter than the second, third shortest, fourth longest; rostrum with the first joint about reaching base of head, second almost reaching anterior coxæ.

Length 14 millim.

Hab. Tenasserim; Myitta (*Doherty*).—China (*fide Stål*).

The type of Dallas possesses no locality.

2753. **Cloresmus antennatus**, sp. n.

Head, pronotum and scutellum dark metallic olivaceous-green; antennæ with the basal joint piceous, second and third joints fuscous-brown, fourth joint pale ochraceous; head beneath and sternum dark metallic olivaceous-green; rostrum, legs and abdomen beneath ochraceous; posterior femora and tibiæ more castaneous; corium purplish-brown tinted with olivaceous, the costal margin narrowly brownish-ochraceous, membrane bronzy-brown; head with the apices of the lateral lobes pointed but not projecting

beyond the central lobe, an arcuate impression in front of the ocelli; antennæ with the first joint shorter than the second, about equal in length to the third, first three joints clothed with rather long hairs, fourth joint longest; rostrum reaching the anterior coxæ, first joint scarcely reaching the latitude of the eyes, first, second and third subequal in length, fourth longest; pronotum sparingly coarsely punctate, the anterior marginal area impunctate and convexly raised; corium thickly, finely punctate; posterior femora prominently spined beneath on their apical halves; tibiæ sulcate; connexivum ochraceous with piceous spots.

Length 12 to 13 millim.

Hab. Sikhim (*Coll. Dist.*).

Allied to both *C. nepalensis*, Westw., and *C. similis*, Dall., differing from both by the colour of the antennæ; distinguished from the first by the shorter and more regularly spined posterior femora; from the latter by the non-produced lateral lobes of the head.

Genus **COLPURA**. (Vol. I, p. 377.)

2754. **Colpura terebrans**, *Bredd. Ann. Soc. Ent. Belg.* L, 1906, p. 50.

"Very dark blackish-brown, membrane uniformly smoky-brown; apical five-sixths of the fourth joint of antennæ, the terminal half of the pronotal tooth, the base of subcostal vein of corium, an obsolete spot not far from the middle of the apical margin of corium, narrow transverse bands of the connexivum and the ventral border rusty-yellow; the smooth point of the scutellum whitish: rostrum, tarsi, and middle of posterior tibiæ somewhat suffused piceous-brown; rostrum towards tip and tarsi in middle rusty-yellow; trochanters, at least middle and hinder, whitish; back of abdomen dull wine-red, in the middle brownish.

"♂. Head before the eyes rather slenderly produced, the side borders between the eyes, and the acute, angularly projecting, antennal bases nearly as long as the longitudinal section of the eyes, when seen from above strongly, obtusely, angularly bent; pronotum only very little arched, the transverse impression in the anterior third distinct, the otherwise straight sides marked by an almost imperceptible bulging in, seen from above the pronotum strongly narrows towards the front, the marginal keeling which is also recognizable from above is expanded towards the front but not laminate; on the other hand, the corners of the neck exhibit a remarkable slender pointed tooth projecting outwards and forwards, which form an acute angle of 45° to 50°, and in its free part is about two-thirds of the length of the upper transverse section of the eyes; membranal venation not reticulate; antennæ moderately long, the slender third joint distinctly longer than the first; legs rather slender, unarmed; rostrum nearly reaching hind margin of fifth abdominal sternite, the violet-black gland 'fore-courts' of the abdominal segments five to seven as in *C. noctua*. Genital plate produced above with rounded terminal margin, this

with broad deep excavation, in the form of a (nearly semicircular) rounded segment, which, at its debouchure, occupies about half of the whole breadth of the terminal margin, and is bordered laterally by sharp pointed (almost rectangular) corners." (*Breddin.*)

"Length $11\frac{1}{4}$ millim."

Hab. Assam (*fide Breddin*).

It is very difficult to understand the position or validity of this species as Breddin has in part compared it with *C. noctua*, Dist. This species he has clearly misunderstood in a redescription he has made of it (Ann. Soc. Ent. Belg. 1906, p. 49), and this despite the fact that at his request I forwarded him cotypes of this and several others of my species of the genus. These remarks are necessitated by the strange course he has pursued of directly contradicting some of the characters I gave for *C. noctua*, the accuracy of which I here reaffirm.

Genus PENDULINUS. (Vol. I, p. 387.)

2755. Pendulinus rostratus, sp. n.

Pale ochraceous; membrane black; antennæ and legs pale testaceous; antennæ with the apices of the second and third joints black, fourth joint piceous, with a broad subbasal annulation and the extreme apex stramineous, first, second and third joints subequal in length, fourth longest; rostrum passing the posterior coxæ, first joint reaching or very slightly passing base of head, second joint extending almost midway between anterior and intermediate coxæ, third reaching intermediate coxæ, fourth longest, its apex black, all the joints beneath with a central black line; head slightly longer than breadth between eyes, sparingly blackly punctate, broadly produced in front of the bases of the antennæ, the central lobe prominent and ridged, ocelli much nearer eyes than to each other; pronotum thickly, coarsely, darkly punctate, the lateral angles distinctly broadly angularly produced, the lateral margins very narrowly black; scutellum a little longer than broad at base, thickly, coarsely, densely punctate, its extreme apex paler and impunctate; corium thickly and somewhat finely darkly punctate, the veins levigate and prominent; sternum coarsely punctate, a small black spot on each section at a short distance from the coxæ; spiracles inserted before middle of abdominal segment, a small black spot near middle of lateral areas of each segment; tibiæ sulcated, femora only slightly incrassated.

Length 18; breadth between pronotal angles $6\frac{1}{2}$ millim.

Hab. Bombay (*Dixon*).

This species differs from the ordinary form of the genus *Pendulinus* by the length of the rostrum and the angularly produced pronotal angles; these divergencies however have been admitted in the genus *Homœocerus*, and I allow the same principle here.

PENDULINUS ANTENNATUS. (Vol. I, p. 389.)

I have received more specimens of this species since I formerly enumerated it in the present publication, and find that in fresh examples the colour of the upper surface is more olivaceous-green than rufo-testaceous as described from the type which was in a probably faded condition.

Division *ATRACTARIA* (after GONOCERARIA, Vol. I, p. 389.)

Atractaria, *Stål, Öfv. Vet.-Ak. Förh.* 1872, n. 6, p. 52.

"Veins emitted from the base of membrane; decurrent vein in wings hooked or forked." (*Stål.*)

The following genus allied to the Palæarctic genus *Spathocera*, Stein, must be placed in this division.

Genus **HAIDARA**, nov.

Type, *H. producta*, Dist.

Distribution. Bombay.

Head subequal in length to that of pronotum, acuminate in front of the insertion of antennæ, the central lobe acutely projecting in front of the lateral lobes, and distinctly somewhat convexly ridged, behind the antennæ the head is broad, a little narrowing inwardly to eyes, which are small and not far removed from the ocelli, the latter much farther apart than from eyes; rostrum at base enclosed in a canal the margins of which are convexly rounded, basal joint not reaching base of head, only extending to eyes, second joint long, nearly reaching intermediate coxæ (imperfectly seen in type, which is a carded specimen); antennæ inserted near apex of head, the basal joint strongly incrassate, broad, the margins ridged, almost as long as head, second short, a little thickened, almost subequal in length to fourth, third longest, slender; pronotum narrowed from base to apex, depressed anteriorly, the lateral margins sinuate, anterior margin subtruncate or very slightly concave, posterior margin reflexed, a little sinuate in front of scutellum, the lateral angles subprominent; scutellum small, subtriangular; corium short, about half the length of abdomen, the apex obtusely acute; membrane not reaching the abdominal apex, its veins more or less reticulate; connexivum broad; legs somewhat short, the femora moderately thickened; tibiæ rounded, not sulcate.

2756. **Haidara producta**, sp. n.

Body and legs ochraceous; head obscurely punctate; antennæ with the first joint punctate, its lateral margins ridged and coarsely striate, second joint granulose, third slender and about as long as first and second together, fourth incrassate, piceous with the base ochraceous; pronotum thickly somewhat coarsely punctate, the

lateral margins paler and levigate, an anterior submarginal transverse impressed line; scutellum with two central clusters of punctures near base; corium thickly punctate, more coarsely

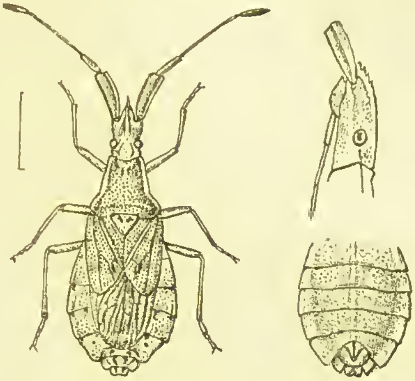

Fig. 274.—*Haidara producta*.

punctate in clavus, a discal dark spot near inner angle; connexivum broad, the incisures darker; body beneath obscurely punctate, abdomen with a central pale longitudinal line; anterior and intermediate tibiæ spotted beneath with piceous.

Length 9; breadth between pronotal angles $2\frac{1}{2}$ millim.

Hab. Bombay; Bor Ghat (*Dixon*).

2757. **Haidara admota**, sp. n.

Head, pronotum, scutellum and corium greyish, thickly darkly punctate; head with the lateral margins and a central longitudinal line dull stramineous, the punctures somewhat longitudinally arranged; antennæ pale obscure ochraceous, the basal joint strongly transversely wrinkled, its margins ridged, broadly incrassate, distinctly shorter than head, second joint shortest, very finely granulose, third long, slender and about as long as first and second together, fourth incrassate, piceous, with the base (narrowly) and the apex (more broadly) ochraceous; pronotum elongate and narrower at base than in the preceding species, the lateral angles less prominent and more broadly and regularly rounded; scutellum darkly punctate, the lateral margins and pale central longitudinal line obscure stramineous and impunctate; corium with the punctures somewhat longitudinally arranged, a small impunctate greyish spot near inner angle; membrane greyish, the veins darker, moderately reticulate; connexivum obscure stramineous with large transverse or oblique dark spots, the two central apical spots longitudinal; body beneath and legs greyish-ochraceous, abdomen with two dark central longitudinal lines, and two similar but more interrupted lines on each lateral area, small dark marginal spots

at apices of incisures; disks of head beneath and sternum piceous-brown.

Length 6; breadth between pronotal angles 2 millim.

Hab. Bombay (*Dixon*).

A smaller and more elongate species than *H. producta*, of a darker and greyish coloration, the basal joint of the antennæ less dilately incrassate.

Genus CLETOMORPHA. (Vol. I, p. 396.)

CLETOMORPHA WALKERI. (Vol. I, p. 397.)

Since I published Kirby's description based on the Ceylon specimen a considerable number of examples have passed through my hands. The Ceylonese type is seen to be the least representative. The description "Interior angle of the corium with one or two small white spots," scarcely applies to the species in its commoner form, in which there is a transverse series of three pale ochraceous or whitish spots extending from above the claval apex to costal margin.

Add:—*Hab.* Upper Burma and Rangoon (*Bingham*). Siamese Malay States (*Annandale & Robinson*).

Genus CRASPEDUM. (Vol. I, p. 399.)

2758. **Craspedum burmanicum**, sp. n.

Obscure greyish, punctured and shaded with fuscous-brown; antennæ with the first joint nearly as long as head, moderately thickened, strongly longly spinose, the spines curved, second joint shorter than the first, slender, not spined; head longly

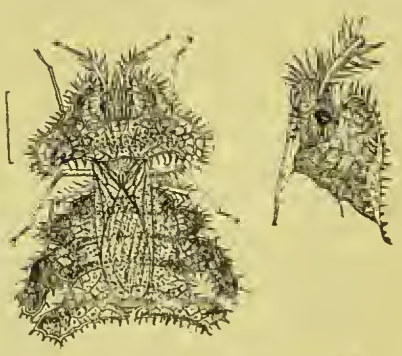

Fig. 275.—*Craspedum burmanicum.*

spinulose, especially at apex where the spinules are straightly produced in front; rostrum with the first joint extending considerably behind the eyes, second joint longer than the third, its apex almost or about reaching the posterior coxæ,

third aud fourth shorter and subequal in length; pronotum widely and irregularly expanded on each side, its margins lougly spinose, the anterior augles produced forwardly beyond the insertion of the antennæ, the lateral margins sinuate, the posterior angles truncately rounded, the posterior margin truncate, uot lobate; abdomen laterally expanded, forming three promiuent lobes, with a fourth shorter and more obsolete near base, their margius longly spinose, the penultimate lobe longest and curved backward, the apical lobe ampliated and posteriorly subtruncate; rostrum about reachiug the posterior coxæ; body beneath and legs pale obscure ochraceous, the abdominal spiracles black; abdomen above greyish, darkly punctate, a small black spot at middle of both anterior and posterior margins of the fourth segment, two similar but widely separated spots ou disk of fifth segment, and two more contiguous spots at middle of apical segment, the lateral lobes becoming darker apically with a more or less distinct black spot near apex of each.

Length 8 millim.

Hab. Upper Burma; Maudalay (*Bingham, Brit. Mus.*).

Genus **STACHYOLOBUS.**

Stachyolobus, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 658, t. vii, f. 4; *id. En. Hem.* iii, p. 88 (1873).

Type, *S. macilentus*, Stål, from the Philippines.

Distribution. Ceylon, Philippines.

Head with the lateral lobes longly produced in front of the antenniferous tubercles, their apices acute and divergent, the central lobe very small, behind the antenniferous tubercles the lateral margins are nearly straight and parallel; the eyes small and placed nearer base than to antennæ; ocelli close to base, central and approximate; autennæ placed about midway between base and apices of lateral lobes, four-jointed, first joint longer than second or third, a little thickened, second and third subequal in leugth, fourth longest; rostrum with the first joint stoutest and about reaching or slightly passing the base of the head, second and third subequal, fourth reaching the posterior coxæ; pronotum a little shorter than head, moderately narrowed from base to apex, anterior margiu truncate, lateral margins almost straightly oblique, posterior margin subtruncate and reflexed; scutellum small with an upright spinous tubercle on disk, the apex also shortly curved upward; corium slightly shorter thau membrane, which does not reach the abdominal apex and is closely finely veiued; sternum centrally sulcate; legs long and slender; odoriferous aperture short and upwardly curved.

2759. **Stachyolobus cuspidatus**, sp. n.

Ochraceous; eyes blackish; ocelli testaceous; antennæ with

the first joint (excluding base), the fourth joint (excluding apex) and the extreme bases and apices of the second and third joints piceous; head almost smooth with a central incised longitudinal line between the latitude of the antennæ and the ocelli; pronotum thickly and coarsely punctate, with an anterior submarginal

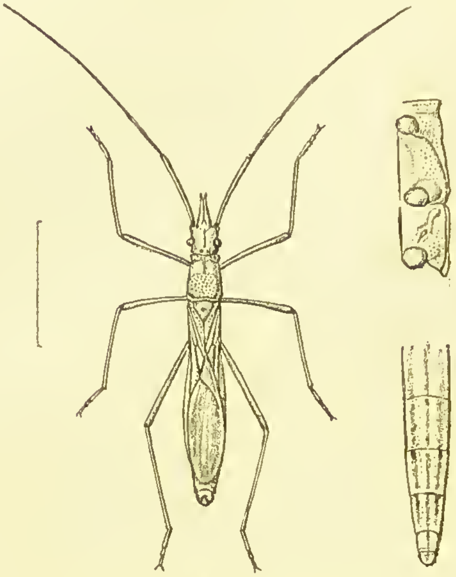

Fig. 276.—*Stachyolobus cuspidatus.*

smooth area which possesses two central darker lines; scutellum with an upright robust discal spine, the apex also shortly upwardly obliquely recurved; corium sparingly coarsely punctate, the claval area more thickly punctate; rostrum with a central piceous line on underside of first joint, the remaining joints almost wholly piceous; abdomen beneath with three longitudinal piceous lines, and two prominent and distinct black spots on the anterior margins of the third and fourth segments.

Length ♂ 15 millim.

Hab. Ceylon; Peradeniya (*Green*).

Genus **ACESTRA.**

Acestra, *Dall. List Hem.* ii, pp. 485 & 488 (1852).

Type, *A. sinica*, Dall.

Distribution. Oriental and Malayan Regions. Originally described from China.

"Head elongated, pointed in front, with the central lobe projecting beyond the apex of the lateral lobes in the form of a long, pointed process, lateral margins, from the antenniferous tubercles to the base of the head, nearly parallel; eyes small, not prominent; ocelli small, approximated, placed close to the anterior margin of

the pronotum; antennæ long, four-jointed, basal joint nearly as long as the head and pronotum together, stout, thickened towards the apex, second joint about as long as the first, slender, thickened towards the base, thinner than the first, first and second joints clothed with long soft hairs, third joint about half as long as the second, thinner, clothed with very fine soft hairs, last joint wanting; rostrum long and slender, reaching the middle of the metasternum, inserted on a level with the apices of the lateral lobes of the head, four-jointed, basal joint not reaching the base of the head, second joint longest, third shortest, fourth nearly as long as the first." (*Dallas.*)

Pronotum much longer than broad, scarcely wider than the head, the lateral margins almost straight and parallel, anterior margin truncate, posterior margin deflected, truncate, a small tubercle on each side before the basal angles of the scutellum which is elongate and angulate; corium and membrane of almost equal length, the latter not reaching the apex of the abdomen and thickly finely veined; legs moderately slender, femora only slightly thickened towards apices; sternum more or less centrally longitudinally sulcate.

The description of the antennæ given by Dallas applies only (so far as known at present) to the typical species *A. sinica*; in *A. malayana* they are not haired and the proportional length of the joints is different.

2760. Acestra sinica, *Dall. List Hem.* ii, p. 488, t. xiv, f. 4 (1852).

Pale ochraceous; head obscurely and minutely punctate, produced portion of the central lobe clothed with long soft whitish

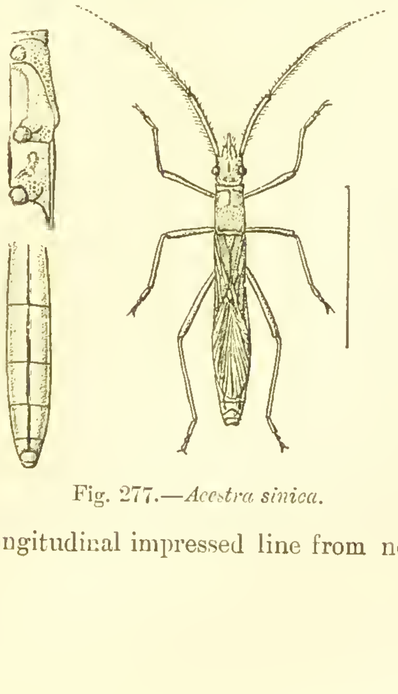

Fig. 277.—*Acestra sinica.*

hairs, a central longitudinal impressed line from near the latitude

of the insertion of the antennæ to near base; pronotum with the anterior marginal area less strongly punctate than the remaining surface, which is also moderately rugulose, a fine central longitudinal carinate line; scutellum a little centrally foveately depressed near base where there are a few coarse punctures; corium with the veins prominent, clavus very thickly and coarsely, remaining surface more sparingly punctate; membrane subhyaline, closely finely veined; sternum thickly and finely punctate; abdomen beneath with a central longitudinal narrow black fascia, smooth, with three approximate brownish punctures on each side of the black line at the base of the third segment, and two or three similar punctures on the second segment; apex of the rostrum black; other structural characters as detailed in the generic diagnosis.

Length 19 to 20 millim.

Hab. Ceylon; Kandy (*Green*).—China (*Brit. Mus.*).

2761. **Acestra malayana**, *Dist. Fascic. Malay.* i, pt. ii, p. 245, t. xv, f. 7 (1903).

Ochraceous with an olivaceous tint; eyes black, between eyes, including the ocelli, a posteriorly curved fascia of black punctures; two small linear black lines on disk of anterior pronotal area; head above finely punctate, a very short central black line between the latitude of the antennæ and that of the eyes, produced central lobe not haired as in *A. sinica*; antennæ olivaceous or brownish, smooth, non-pilose, first and fourth joints longest and subequal in length, first moderately thickened towards apex, second and third slender and subequal in length, fourth slender, curved, a little paler near base; pronotum thickly coarsely punctate, except a subanterior marginal area which is almost smooth, and at lateral margins of which there is a curved black line; scutellum punctate, the apical area smooth and on which there is a foveate spot; corium with the veins prominent, coarsely punctate, the clavus more densely punctate; membrane subhyaline, closely finely veined; abdomen above testaceous, marginally piceous; the connexivum pale brownish, posterior margin of the third and fourth segments broadly paler; mesosternum with two longitudinal black lines; metasternum with a central black line; abdomen beneath with a faint and indistinct central longitudinal darker line; rostrum about reaching posterior coxæ, its apex black.

Length 18½ millim.

Hab. Burma; Taunggyi (*Thompson*).—Siamese Malay States (*Annandale & Robinson*).

Genus DULICHIUS. (Vol. I, p. 407.)

2762. **Dulichius thompsoni**, *Dist. Ann. Soc. Ent. Belg.* xlvii, p. 43 (1903).

Piceous; hemelytra and antennæ brownish-piceous; rostrum,

coxæ aud legs dull dark ochraceous; abdomen beneath obscure castaneous; apex of rostrum piceous; head robust, finely granulate, discal area with its lateral margius on inuer sides of eyes laminate and obscure browuish-ochraceous, very prominently constricted at base, ocelli prominent aud black, eyes ochraceous; anteunæ with the first joint shortest, about reaching the ocelli, second and third joints longest and about equal in length; pronotum finely granulate, with a long erect spine near each lateral angle, posterior margin concavely sinuate; scutellum finely granulate, with a loug erect spiue at apex; hemelytra very much abbreviated, scarcely one-third the length of the abdomen, lougitudiually rugose, excepting the lateral margins which are ochraceous; abdomen strougly constricted at base, and again narrowed towards apex which is truncate; rostrum almost reaching the posterior coxæ, first joint robust, much shorter than head, second joint slender aud longest.

Length $8\frac{1}{2}$ millim.

Hab. Burma; Shan States, Taunggyi (*Thompson, Coll. Dist.*).

Genus EUTHETUS. (Vol. I, p. 412.)

2763. **Euthetus singalensis**, sp. n.

Head and pronotum pale brownish-ochraceous, the first with four longitudinal black fasciæ, of which two are central extending from ocelli to base, and one on each lateral margiu extending from eyes to base; antennæ pale brownish-ochraceous, apices of the first, second, and third joints narrowly piceous, fourth joint piceous-brown with the base paler; scutellum piceous with a central longitudinal ochraceous line; corium fuscous-brown with the veins and numerous speckles ochraceous; membrane fuscous-brown; body beneath and legs ochraceous; two broad longitudinal fasciæ to head beneath, central disk of sternum, a large spot on lateral areas of meso- and metasterna, base, apex and central suffusions to abdomen beneath, a subapical annulation to anterior and intermediate femora and an apical annulation to posterior femora, and apices of tibiæ and tarsi, black; first and third joints of antenuæ subequal in length, second shortest, fourth nearly as long as second and third together; rostrum reaching the intermediate coxæ, first joint stout, almost reaching base of head, secoud joint reaching anterior coxæ; pronotum finely punctate and granulose, the posterior augles subacute, the lateral margins almost straight, slightly sinuate; scutellum moderately raised and deflected on each side; corium punctate, the apical angles flavescent and impunctate, the clavus more thickly punctate, the veins prominent; membrane not quite reaching the abdomiual apex; sternum more or less punctate; femora very finely and obscurely spotted with piceous,

posterior femora with a distinct pale annulation before the black apex; tibiæ finely darkly spinulose.

Length 9 millim.

Hab. Ceylon (*Green.*)

Mr. Green sent me a single example of this distinctly marked species.

Genus BABARANUS, nov.

Type, *B. ornatulus*, Dist.

Distribution. Assam, Tenasserim.

Head as long as pronotum, eyes situate nearer base than apex; ocelli central, contiguous, about midway between eyes and base; antennæ inserted at a little nearer eyes than apex, slender, first, second and third joints nearly equal in length, fourth longest; rostrum with the first joint about or almost reaching base of head, second joint longest, about as long as third and fourth together, fourth reaching the posterior coxæ; pronotum a little narrowed anteriorly, the anterior area with two transverse impressions enclosing a convex area on which are two short erect spines, lateral angles produced in horizontal spines, anterior margin truncately rounded, posterior margin slightly sinuated before scutellum on each side of which it is slightly posteriorly lobed; scutellum slightly gibbous, subcordate in shape and with a somewhat long erect spine near apex; abdomen sinuately narrowed near base, its apex shortly spined on each side, the connexivum erectly reflexed, thus giving the discal surface a concave appearance; corium a little shorter than the membrane, its posterior angles much elongated; membrane reaching the abdominal apex, the veins oblique, not prominent; incisure between pro- and mesosterna very profound; mesosternum centrally longitudinally sulcate; legs long, slender, finely spinulose, femora only very slightly thickened, posterior tibiæ a little curved, as long as the femora, posterior tarsi with the basal joint a little longer than the two remaining joints together.

2764. Babaranus ornatulus, sp. n.

Head dull pale ochraceous, two longitudinal lines on anterior area, a small spot on disk, two longitudinal lines on basal area obliquely branching on each side, and the lateral margins, piceous or black; antennæ piceous, first joint (excluding apex), narrow bases to second and third joints and broad base to fourth joint pale ochraceous; pronotum ochraceous, very thickly darkly punctate, the area between the two anterior transverse impressions almost impunctate, convex, and provided with two long erect spines which are ochraceous with their apices piceous, the lateral margins and the posterior angular spines black, the posterior slightly lobed margin on each side of scutellum very pale ochraceous; scutellum ochraceous with an obscure dark central longitudinal line; corium ochraceous with coarse dark punctures between the prominent

veins, the costal and apical margins levigate, pale ochraceous; membrane subhyaline, exhibiting some of the markings on the

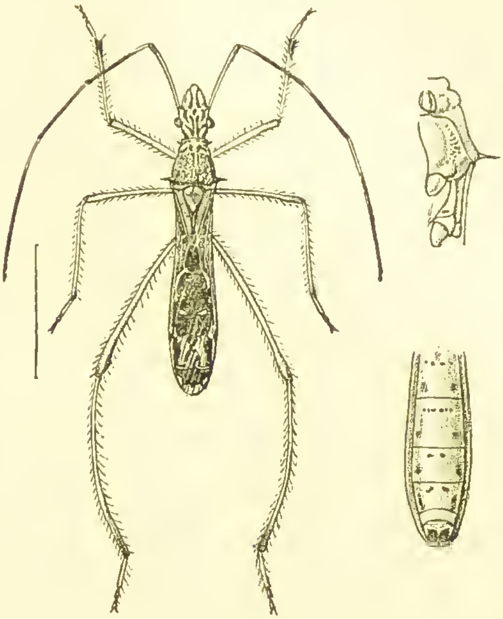

Fig. 278.—*Babaranus ornatulus.*

upper surface of the abdomen, which is black, with a spot near base, a transverse fascia before middle, a similar narrower fascia beyond middle, and two large angulate spots before apex pale lutescent; connexivum with large lutescent spots; body beneath and legs very pale ochraceous, apices of femora, tibiæ and tarsi more or less piceous; abdomen with segmental dark spots (as shown in figure).

Length 16 millim.

Hab. Assam (*Coll. Dist.*). Tenasserim; Myitta (*Doherty*).

Genus **TENOSIUS**.

Tenosius, *Stål, Öfv. Vet.-Ak. Förh.* 1859, p. 460; *id. En. Hem.* iii, p. 90 (1873).

Type, *T. proletarius*, Schaum.

Distribution. Oriental and Ethiopian Regions.

Head a little longer than breadth between eyes, a circular ridge on each side from base of antennæ, outside the ocelli and united on basal margin; antennæ inserted about midway between eyes and apex, first joint moderately clavate at apex and as long as second joint or slightly longer, fourth longest, as long or longer than second and third together; ocelli near base, a little behind eyes; rostrum not quite reaching the intermediate coxæ, first

joint not reaching base of head, second much longer than third; pronotum about as long as head, narrowed anteriorly, anterior margin subtruncate, posterior margin truncate in front of scutellum, thence a little oblique to the posterior lateral angles, the lateral margins almost straight or very slightly sinuate; scutellum small, elongately subtriangular; corium slightly longer than membrane, the posterior angles elongately produced; membrane slightly passing the abdominal apex, the veins obliquely straight; posterior femora strongly incrassate, shortly spinose beneath; posterior tibiæ strongly curved; first joint of posterior tarsi longer than second and third together.

Allied to *Mirperus* and *Melanacanthus*, Stål; known from the Ethiopian, Malayan and Australasian Regions.

The South African *Mirperus robustus*, Dist., can also be included in this genus.

2765. **Tenosius proletarius**, *Schaum* (Alydus), *Ber. Ak. Berl.* 1853, p. 358; *id. in Peters, Reis. Moss., Ins.* p. 42, t. ii, f. 6 (1862).
Mirperus nigrofasciatus, *Dist. A. M. N. H.* (7)xiii, p. 352 (1904).

Ochraceous, coarsely punctate; head with a sublateral fascia on each side black or piceous, the edges of the ridge ochraceous and a more obscure central pale longitudinal line; ocelli purplish-red;

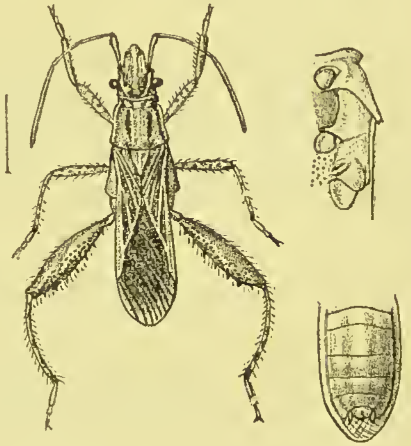

Fig. 279.—*Tenosius proletarius.*

antennæ with the first, second and third joints brownish-ochraceous, fourth more palely piceous; pronotum with two piceous or black longitudinal fasciæ (not reachiug anterior margin), a central longitudinal line and the extreme lateral margins paler and with an obscure dark submarginal fasciate line, the punctures much coarser than on head; scutellum transversely wrinkled and

punctate, the lateral margins, central line and apex pale ochraceous and impunctate: corium with the costal area stramineous, the punctures becoming thick and black between the veins towards apical area; membrane pale piceous, its apical margin pale hyaline; body beneath obscure ochraceous; head beneath, rostrum and legs testaceous; abdomen sometimes with two distinct longitudinal dark fasciæ and between them on basal area two narrower and ill-defined fasciæ, these are somewhat obsolete in the Bengal specimen here figured; tibiæ paler than femora and annulated with ochraceous; first joint of antennæ slightly passing the apex of head.

Length 9 to 9½ millim.

Hab. Bengal; Palamow (*Lefroy*).—South Africa: Transvaal, Zoutpansberg (*Junod*, *Brit. Mus.*); Mozambique (*fide Schaum*).

This species was originally described from Mozambique and afterwards by myself from specimens collected at Shilouvane in the north of the Zoutpansberg district of the Transvaal, which is a well-wooded area and quite distinct from the plains of the high Transvaalian veld.

Riptortus fuscus. (Vol. I, p. 414.)

Since I enumerated this species (*supra*) Mr. Green has informed me that it is very destructive to young shoots and pods of French Beans (*Phaseolus vulgaris*). The insects were swarming on a plot and had completely blighted the crop.

Genus **AKBARATUS**, nov.

Type, *A. fisheri*, Dist.

Distribution. Bombay.

Head longer than breadth between eyes, narrowed anteriorly, the apex of the central lobe a little prominent; ocelli placed between the posterior margins of the eyes, nearer to eyes than to each other; antennæ inserted almost midway between eyes and apex, first joint a little longer than the second and about equal in length to third, fourth longest; rostrum with the basal joint shorter than the fourth, not quite reaching the latitude of the eyes, second and third joints of almost equal length or second slightly longer than third, its apex reaching the anterior coxæ, fourth reaching the intermediate coxæ; pronotum as long as vertex, a little narrowed anteriorly, strongly transversely impressed before anterior margin which is truncate, the lateral margins a little oblique and ridged, the posterior margin truncate before scutellum and then obliquely sinuate on each side to posterior angles where there is a small tubercle; scutellum short, subtriangular, somewhat raised, its apex moderately spatulate; corium about as long as membrane, the apical angles narrowly produced; membrane slightly passing abdominal apex with oblique

slender veins; posterior femora long, a little longer than greatest length of corium, finely spined beneath, slightly thickening from base to apex; posterior tibiæ straight, shorter than the femora, with a single row of spines beneath commencing at about one-third from base and clothed with long spinulose hairs; posterior tarsi with the first joint longer than the second and third joints taken together; mesosternum centrally longitudinally sulcate.

Allied to the Ethiopian genus *Hypselopus*, Burm.

2766. **Akbaratus fisheri**, sp. n.

Head pale testaceous-brown, the ocelli bright testaceous, eyes black; antennæ with the first, second and third joints greyish finely speckled with black, fourth joint brownish-ochraceous; pronotum pale ochraceous or greyish, punctate and finely granulose with a pale, indistinct, central longitudinal line, the margins

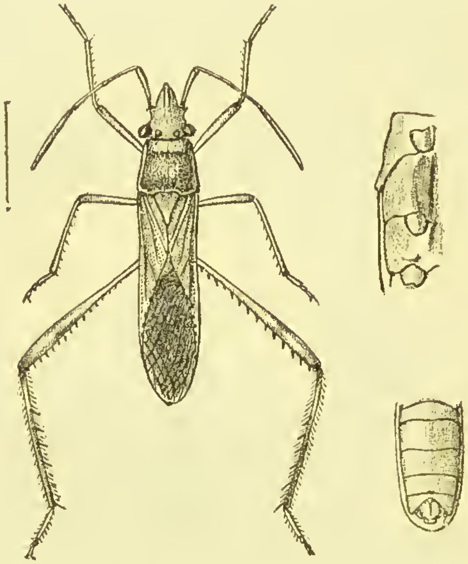

Fig. 280.—*Akbaratus fisheri.*

narrowly stramineous, the anterior marginal area defined by the transverse impression pale testaceous-brown, a small nodule at each posterior angle; scutellum ochraceous, its apex a little paler; corium pale ochraceous, thickly coarsely punctate, the inner apical margin with a series of small piceous spots; membrane pale bronzy-brown; body beneath and legs pale ochraceous, a central longitudinal line to head beneath and the disk of mesonotum piceous or castaneous; posterior femora with two obscure brownish apical annulations, the posterior tibiæ brownish with a

broad subbasal pale annulation, basal joint of posterior tarsi stramineous.

Length 13 millim.

Hab. Bombay; Dehra Dun (*C. E. C. Fisher*).

I also possess a specimen captured in the Straits of Bab-el-Maudeb, Red Sea, on board ship at light, by Dr. Annandale.

Family BERYTIDÆ. (Vol. I, p. 421.)

Genus METATROPIS.

Metatropis, *Fieb. Wien. ent. Monats.* 1859, p. 206; *id. Europ. Hem.* p. 213 (1861); *Saund. Hem. Hom. Brit. Islds.* p. 66 (1892).

Type, *M. rufescens*, Herr.-Schäff., described from the Palæarctic Region.

Distribution. Palæarctic and Oriental Regions.

"Head with a transverse channel between the eyes, vertex in front of it slightly raised; antennæ very long and delicate, first joint clavate at the apex, the second shorter than the third, apical joint many times longer than wide; pronotum much raised posteriorly and trituberculate; scutellum simple, with a slightly raised simple keel; membrane very large; legs very long and delicate, femora clavate; orifice of the odoriferous sac simple." (*Saunders.*)

2767. **Metatropis aurita**, *Bredd. Wien. ent. Zeit.* xxvi, p. 94 (1907).

"Pale, rarely brownish; antennæ and legs whitish-yellow; the femora (only these) finely sprinkled with black, the rather slender thickening of the femora and first joiut of the antennæ as well as base of tibiæ dull sanguineous, the apices of tibiæ slightly brownish, more than terminal half of tarsi blackish; fourth joint of antennæ (exclusive of dirty rusty-yellowish tip), the underside of the head, sides of propectus especially the outer surfaces of the pronotal angles, the margins of the coxal cavities, middle of pectus, longitudinal central ventral line, and suffused longitudinal ventral marginal spots piceous-black or piceous-brown, the last spot furnished with yellow marginal spots; a longitudinal line on each side of lower part of head, marginal keel of pronotum, and an invariable spot near coxal cavities pale rusty-yellowish; coxæ and trochanters ivory-white; back of abdomen rusty-brown. Agreeing in structure with *M. rufescens*, but in all parts more delicate; legs and antennæ comparatively shorter, pronotum far less distinctly punctured, the pronotal angles produced into acutely

angulated horns above (and slightly outwards), high, overreaching the only moderately raised median tuberculous elevation, hind margin of pronotum rather broader than the abdomen, with the tegmina at base distinctly projecting outwards as an angular tooth-cover (still more distinctly than in *rufescens*); tegmina without visible puncturation, not extending beyond the apex of the abdomen; first joint of rostrum much shorter than head, second scarcely passing beyond the hind margin of the throat (*kehl*); first joint of antennæ as long as second and third

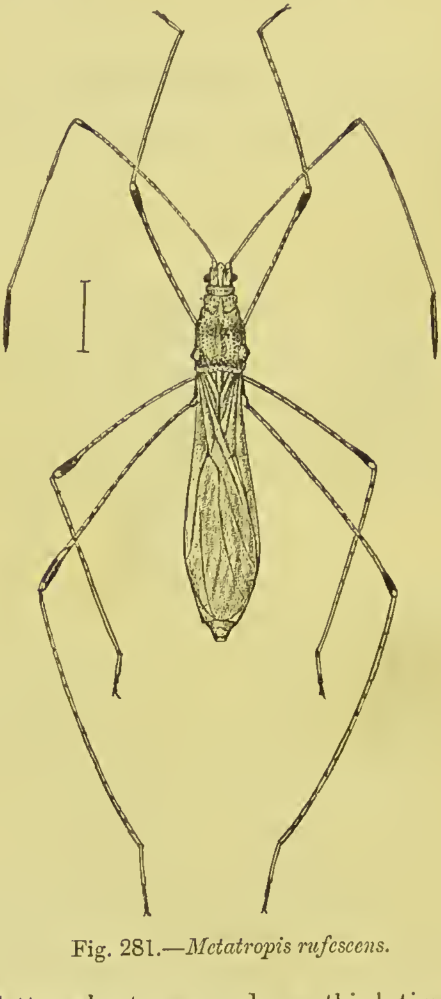

Fig. 281.—*Metatropis rufescens.*

together, the latter about one and one-third times longer than second, fourth spindle-shaped, distinctly shorter than second (about four-fifths); basal joint of hind tarsi scarcely longer than the two terminal joints together." (*Breddin.*)

Length 7·3 millim."

Hab. Darjeeling (*fide Breddin*).

I figure the type of the genus *M. rufescens* because I have not seen a specimen which supports Breddin's diagnosis. I have an example from Bombay which only has the femora sprinkled with black as described by Breddin, but in other respects seems only to be a variety of the variable *M. rufescens*.

Genus CAPYS.

Capys, *Stål, Hem. Afr.* ii, p. 119 (1865).

Type, *C. malacaipus*, Stål.

Distribution. Ethiopian and Oriental Regions.

"Body slender, very elongate; head between antennæ armed

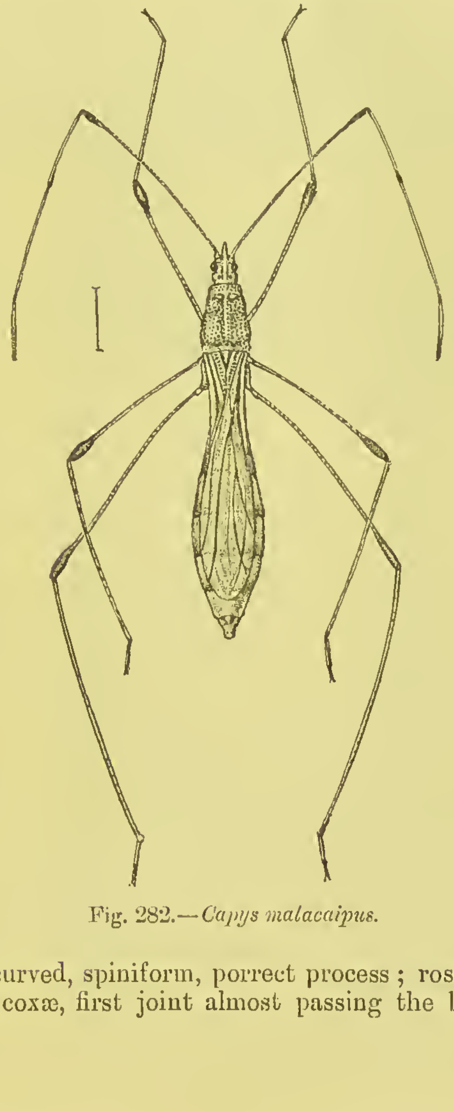

Fig. 282.—*Capys malacaipus.*

with a long, curved, spiniform, porrect process; rostrum reaching the posterior coxæ, first joint almost passing the base of head;

antennæ very long, first joint equalling in length that of the second and third together; pronotum much longer than broad, posteriorly depressed, furnished with an obtuse conical tubercle near each lateral angle; scutellum triangularly oblong; mesosternum, metasternum, and first ventral segment sulcated; process of the odoriferous apertures apically emarginate; legs very long and slender." (*Stål.*)

The following characters taken from Stål's diagnosis of the family Berytidæ may be added:—Antennæ of four joints, first joint clavate at apex; head constricted before ocelli; eyes remote from base of head; femora apically clavate; tarsi three-jointed.

2768. **Capys malacaipus**, *Stål* (Neides), *Öfv. Vet.-Ak. Förh.* 1855, p. 30; *id.* (Capys) *Hem. Afr.* ii, p. 120 (1865).

"Palely testaceous-flavescent; pronotum distinctly punctate; antennæ and legs sprinkled with black; apices of the first, second and third joints of the antennæ and the apex of the corium black; fourth joint of the antennæ greyish-white, with almost the apical half fuscous; clavate apices of the femora testaceous-flavescent." (*Stål.*)

Length $7\frac{1}{2}$ to 9 millim.

Hab. Ceylon; Trincomalee (*Green*).—Natal; Durban (*Bell-Marley*, *Coll. Dist.*). Caffraria (*fide Stål*).

This is another South African species found also in Ceylon; a single specimen from the last locality sent me by Mr. Green being inseparable from my Natalian specimens.

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